BUCK ROGERS™

PLANET OF ZOOM™

SEGA



Owner's Manual

Manual Part No. 420-0881

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PLANET OF ZOOM™
SEGA

Owner's Manual

Manufactured By

SEGA®

TLX 910-335-1621

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Introduction

BUCK ROGERS™ PLANET OF ZOOM™ is a micro-processor based coin-operated electronic game, that makes extensive use of digital integrated circuitry and television monitor concepts. This manual is intended for the use of the maintenance technicians who possess a general working knowledge of solid-state circuitry and video monitor theory. Any individual NOT knowledgeable in these areas SHOULD NOT attempt repair of the electronic portions of the game.

In addition to this manual and training in electronics, troubleshooting and repair will be facilitated by: access to general electronic type handtools, a multimeter, a 50 to 100 MHz oscilloscope and a logic probe would be helpful.

Technical assistance is available toll-free by calling:

1-800-854-1938 outside California

1-800-722-8576 inside California

Parts information assistance is available toll-free by calling:

1-800-854-1900 outside California

1-800-722-8575 inside California

Questions or comments concerning BUCK ROGERS™ PLANET OF ZOOM™ or any of our games are welcome and should be directed to:

Customer Service Manager
SEGA Electronics, Inc.
16250 Technology Drive
San Diego, California 92127-1985

Important Notes

The following note is included in compliance with FCC rules: WARNING: This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Other Notes

NEVER replace any components with anything other than exact replacement parts.

NEVER remove circuit board connections while power is on.

DO NOT replace fuses with anything other than the proper value. A blown fuse indicates an overload condition within the game. Replacing fuses with a higher value can cause severe damage to internal components if an overload occurs.

ALWAYS consult the manual before attempting repairs.

SPARE PARTS will be maintained at SEGA Electronics, Inc., for a period of five (5) years after the date of manufacture of the game concerned.

Game Concept

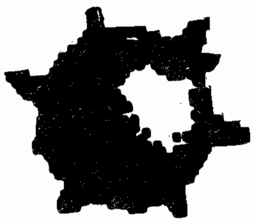
Flying skills and targeting accuracy must be honed to a fine edge, as you take command of Earth's last remaining hope of defense. Responsive 8-way joystick in hand, excitement is the name of the game as the Buck Rogers in all of us pilots a remote controlled spacecraft through the PLANET OF ZOOM™.

In the 25th century, Buck Rogers is confronted by a wicked warrior-world . . . the Planet of Zoom. It is a gargantuan out-of-orbit world that devastates everything in its path, and is ruled by an evil source ship. Buck Rogers mission: To destroy the source ship and liberate the Planet of Zoom before it reaches Earth.

Equipped with single-shot or rapid fire neutron cannon, and 2 level (upright) or 4 level (cockpit) speed control, you race your ship into and through heavily armed channels, through formidible smasher tunnels and around the towering spires of the cosmic city. You bank, dive and climb in pursuit of bizarre alien ships and ground forces to reach the climatic scene and primary target, the all powerful enemy source ship.

Fantastic game play graphics, great stereo sound effects, intense action and unique player controls makes this versatile one or two player video game as super as the Buck Rogers hero it is named for. With 3 to 6 extra ships (operator selectable) your score mounts and rounds proceed until the loss of the last player ship.

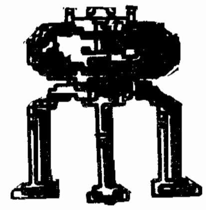
Scoring



100



200



300



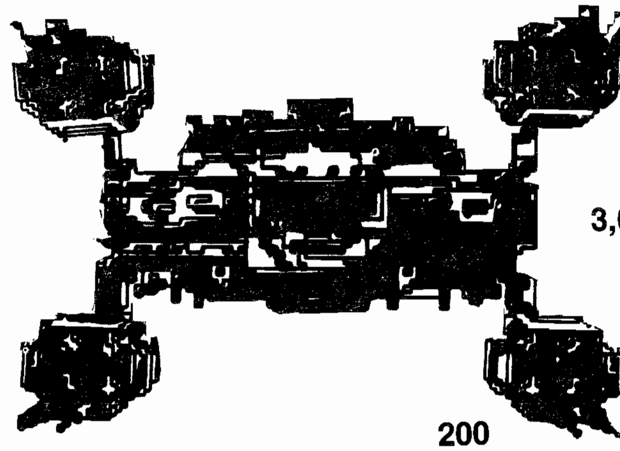
500



200



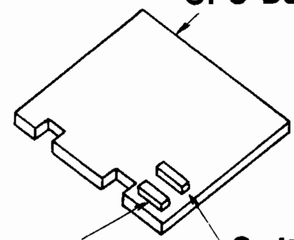
200



3,000

200

Option Selection



OPTION	SWITCH #1 1	2	3	4	5	6	7	8
1 COIN/1 CREDIT	ON	ON	ON	ON	ON	ON	X	X
1 COIN/2 CREDIT	OFF	ON	ON	OFF	ON	ON	X	X
1 COIN/3 CREDIT	ON	OFF	ON	ON	OFF	ON	X	X
1 COIN/6 CREDIT	OFF	OFF	ON	OFF	OFF	ON	X	X
2 COIN/1 CREDIT	ON	ON	OFF	ON	ON	OFF	X	X
3 COIN/1 CREDIT	OFF	ON	OFF	OFF	ON	OFF	X	X
4 COIN/1 CREDIT	ON	OFF	OFF	ON	OFF	OFF	X	X
5 COIN/1 CREDIT	OFF	OFF	OFF	OFF	OFF	OFF	X	X

OPTION	SWITCH #2 1	2	3	4	5	6	7	8
COLLISIONS	ON	X	X	X	X	X	X	X
NO COLLISIONS	OFF	X	X	X	X	X	X	X
ACCEL. BY PEDAL	X	ON	X	X	X	X	X	X
ACCEL. BY BUTTON	X	OFF	X	X	X	X	X	X
BEST 5 SCORES ON	X	X	ON	X	X	X	X	X
BEST 5 SCORES OFF	X	X	OFF	X	X	X	X	X
SCORE DISPLAY ON	X	X	X	OFF	X	X	X	X
SCORE DISPLAY OFF	X	X	X	ON	X	X	X	X
DIFFICULT	X	X	X	X	ON	X	X	X
NORMAL	X	X	X	X	OFF	X	X	X
COCKPIT	X	X	X	X	X	X	X	ON
UPRIGHT	X	X	X	X	X	X	X	OFF
3 EXTRA SHIPS	X	X	X	X	X	ON	ON	X
4 EXTRA SHIPS	X	X	X	X	X	OFF	ON	X
5 EXTRA SHIPS	X	X	X	X	X	ON	OFF	X
6 EXTRA SHIPS	X	X	X	X	X	OFF	OFF	X

ON = CLOSED OFF = OPEN X = NOT USED

Theory of Operation

BUCK ROGERS™ is a "state-of-the-art" electronic microprocessor based, video game. The result of hundreds of hours of work, design, research, experiment and more work. However, as with any electronic device, component failure or other problems can result in a game that doesn't function properly, or doesn't function at all. In either case, your game is "down", and so critically, are your profits.

Your objective is to fix it as quickly as possible, and logical trouble-shooting goes a long way toward that repair. Although many troubleshooting methods may be familiar to you, procedural logic is common among them, and might be stated in this order: visual inspection, symptom recognition, symptom isolation, function isolation, component isolation and repair. Familiarity with the equipment in question will allow you to bypass one or more of these steps, as any particular problem may be obvious to you, or may have happened before. In general though, these 6 steps form a good premise upon which to approach your "down" game.

An extremely important item in our procedure is the first mentioned, giving the gear the "once over". A large percentage of failures found in electronics, show themselves visually and often a great deal of time can be saved by inspecting for burnt or blown components, loose or disconnected wiring or connectors, or PCB traces burnt or pulled up. Thorough visual inspections become increasingly important the closer you get to the faulty item, and should be repeated each time another portion of the game is eliminated. Symptom recognition (as with all electronic troubleshooting) in your BUCK ROGERS depends first, on knowing what a proper display is, and second, knowing how your display differs from a normal one. Symptom isolation follows naturally; (i.e., "I have no picture", "I have no sound", "I have no control over the ship", "the picture is scrambled"), ergo, a video, audio, input or logic problem. Function isolation, such as a sync problem with the video, requires that you consider those functions that go to make up video sync. Is it a monitor problem, or an "on-the-board" problem? A monitor input check to verify the signal will tell you. Does the board have the voltage (from the power supply) that it needs? Yes? We must have a board failure, as we've just isolated down to function. Taking our sync problem further, before we begin our search for an individual component, let's reapply that first item in

our "Logical Troubleshooting Procedure". Look at the board. Open resistors, diodes, and capacitors often give themselves away.

Noticing a trace literally burned open can save you serious "down-time". The board looks OK, so on we go. Specific component isolation relates to the specific nature of the failure, component commonality, proper inputting (both signal and power) and proper outputting (as in the case of an output held high, low, or floating by input port failure in the succeeding state). More general problems (such as a total loss of video sync) requires the more involved procedure of systematic elimination of possibilities. This operation can be expedited however, by dividing the circuit in half, establishing a "go-no/go" at that point, and again dividing the suspect circuit portion in half. The largest possible areas can be eliminated in this manner, dividing and sub-dividing until the individual component failure is found.

BUCK ROGERS™ is a microprocessor based, digital-integrated circuit computer video game. The heart of the computer is the CPU (IC13, Zone8-D, Sht. 1, CPU Bd., 834-5120), a Z80A (P/N 315-0041). The Alpha type device MUST ALWAYS be used, as the Z80 is not fast enough to run the programs.

Master timing is crystal-driven at 20.00 MHz (X1, Zone 8-A, Sht. 1, CPU Bd., 834-5120) through IC34, 28, and 35. CPU timing is taken from IC34 p-7, applied to IC35 p-2 (Zone 8-B, Sht. 1, CPU Bd., 834-5120) clocked out of IC35 at p-13, inverted by IC28 (Zone 8-C, Sht. 1, CPU Bd., 834-5120) and finally applied to pin-6 of the CPU (IC13). Additionally, IC13 provides 5 MHz and 10 MHz for video timing and character generation, as well as processed interrupts and timing for the Select Address processor IC50 (Zone 8-D, Sht. 5, CPU Bd., 834-5120).

Manual system reset (Power-On) appears as a LO at IC16 p-4 (Zone 8-D, Sht. 1, CPU Bd., 834-5120) and is then felt at pin-26 of the CPU (IC13, Sht. 1, Zone 8-D, CPU Bd., 834-2150). Normal program interrupts (INT) are felt at pin-16 of the Z80A (an edge-triggered LO), and are the result of Input/Output activity timing with vertical blanking (an approx. 2 msec. instruction interrupt). The WAIT signal is used to synchronize that I/O activity during an interrupt to the CPU. IC1 and 2 (Zone 6-D, Sht. 1, CPU Bd., 834-5120) are address bus drivers. Two of the sixteen address lines pass through IC30 (Zone 6-D, Sht. 1, CPU Bd., 834-5120) and subsequently drive the Chip Enable inputs of EPROM IC's 3, 4, 15 and RAM IC 14 (Sht. 1, CPU Bd., 834-5120). IC's 113, 114, 121 and 122 (Sht. 4, CPU Bd., 834-5120) are input ports on the data bus. The 44-pin flat connector supplies player input information, service switch,

game start and coinage to the input ports. IC119 and 121 input Coin B, and IC120 and 121 input Coin A, together with Game Start, Self-Test, Up/Down and Acceleration to I/O processor IC106 (Zone 4-D, Sht. 4, CPU Bd., 834-5120). IC111, 112 and 114 accesses/buffers Player Left/Right data, IC111 and 113 interfaces Fire data, and Option Selection is shared by all 4 74LS244's. Located in the Volume Control Block is the Self-Test switch. When closed, it applies a LO to IC119 p-6 (Zone 7-C, Sht. 4, CPU Bd., 834-5120) initiating a systems/function verification outlined on the following page:

Self-Test

BUCK ROGERS™ is equipped with a diagnostics sequence that is initiated by pressing the Self-Test button located on the Volume Control Block Assembly. The test appears in the following order, with each major catagory ending with the press of the Self-Test button:

1.

RAM CHECK

EPROMS CHECK

IC 3 GOOD

IC 4 GOOD

2.

- Switch condition (ON or OFF) is verified by actuation.

INPUT TEST

DIP SWITCHES

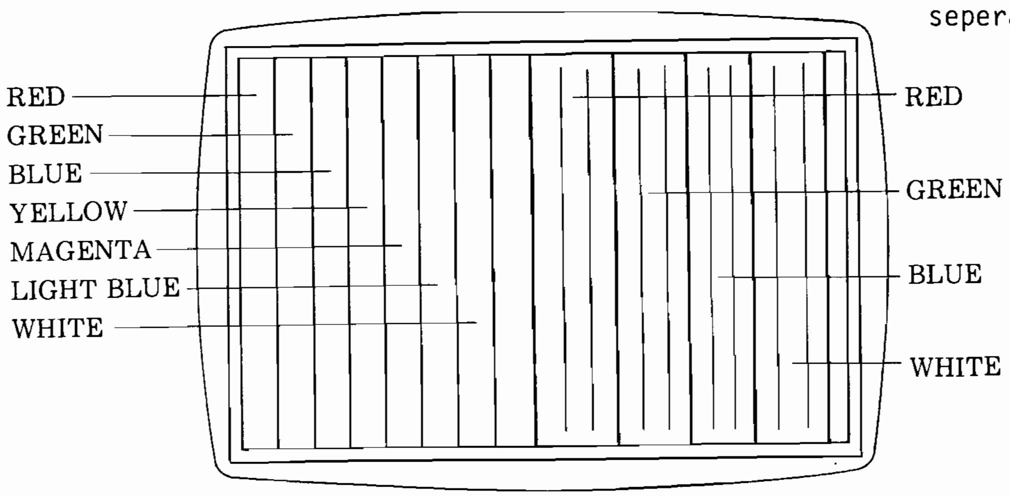
	8	7	6	5	4	3	2	1
DIP SW 1	O	O	C	C	C	C	C	C
DIP SW 2	C	C	C	O	C	C	C	C

CONTROLS

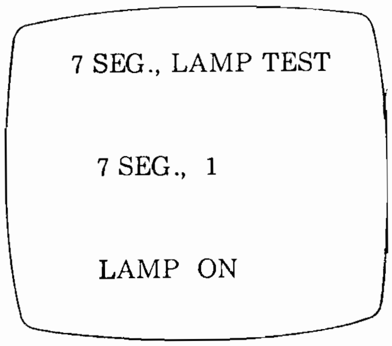
START	OFF
COIN 1	OFF
COIN 2	OFF
SERVICE	OFF
RIGHT	OFF
LEFT	OFF
DOWN	OFF
UP	OFF
FIRE	OFF
ACCEL	1

3.

- Color tracking and seperation

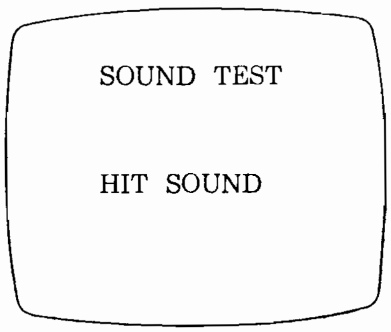


4.



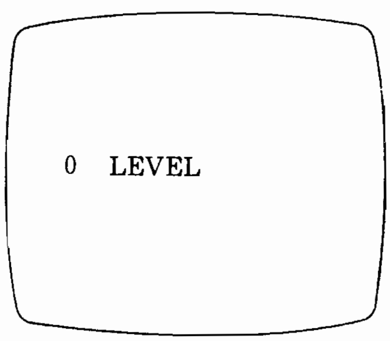
- START button sequences LED numerical read-out 0 - 9

5.



- FIRE button initiates each sound audibly.
- START button sequences each sound in turn.

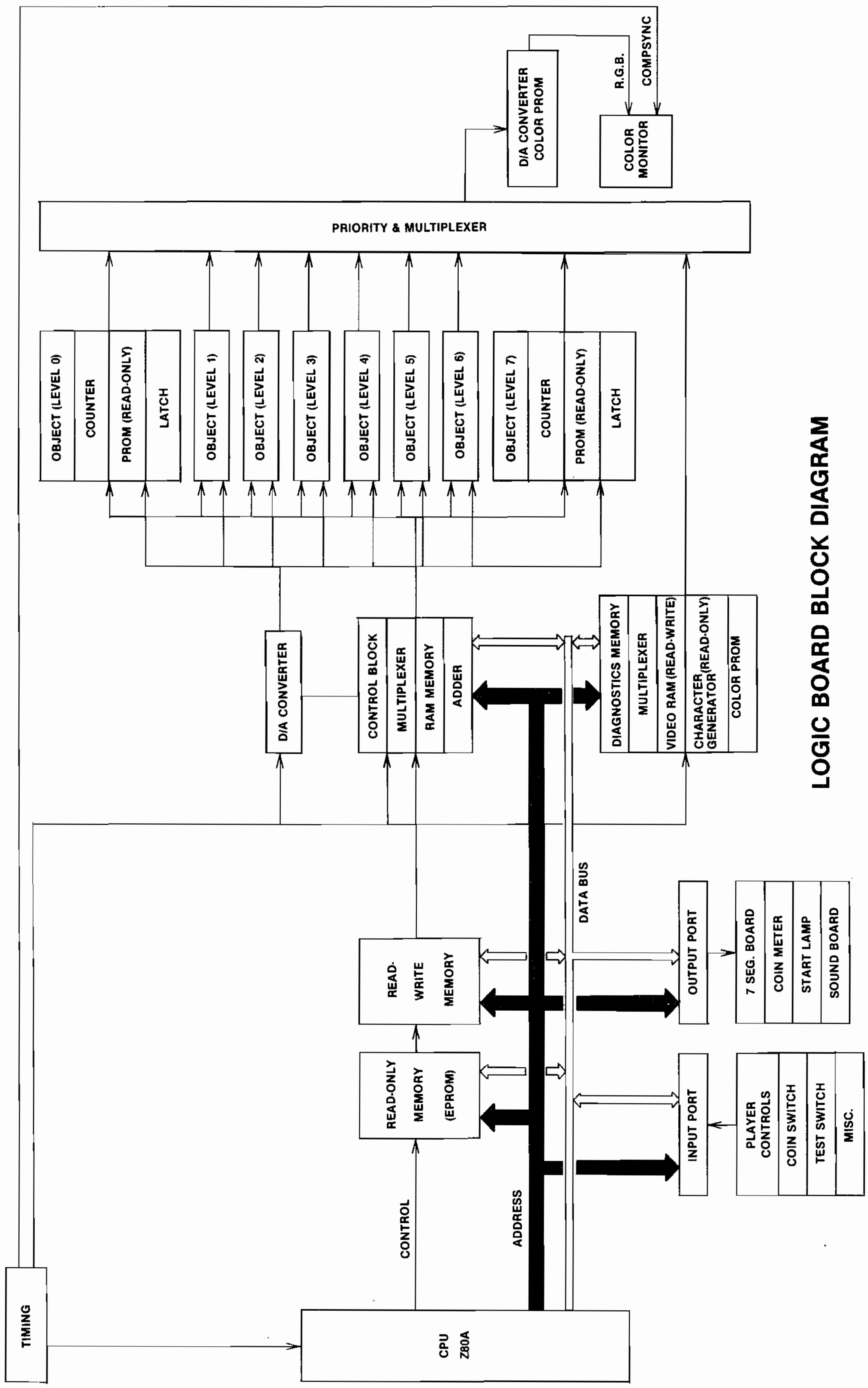
6. Character ROM Test



- Video display of character memory by Object Level.
- START button sequences Object Levels 0 through 7.

Due to the striking graphics employed in BUCK ROGERS™, memory requirements for background generation are significant. On the EPROM Bd. (834-5121) there are sixteen (16) 27128-3 16K X 8 EPROMs that hold video character, positioning, color and timing information. Background generation accessable memory (RAM) is provided by TTL IC14 and IC84 (Zone 2-D and 4-B respectively, Sht. 1, on the CPU Bd., 834-5120), in addition to IC's 6-9 on Sht. 3 of the CPU (834-5120). Back on the EPROM Board, program storage is organized into eight (8) levels of multiplexed data for troubleshooting efficiency (Sheets 3 through 10, EPROM Bd., 823-5121), with final pre-CPU input "mux" occurring on Sht. 2, EPROM Bd., 834-5121. Armed with program data and input port data, the CPU can then integrate timing and sync (Sht. 2, CPU Bd., 834-5120) with color requirements (Sht. 6, CPU Bd., 834-5120) to produce complete color video at the Output Ports consisting of IC's 97, 98, 109 and 110 (Sht. 6. CPU Bd., 834-5120).

Just as the microprocessor Z80A is the heart of the game computer, so too is the 8255A-5 (IC113, Zone 2-D, Sht. 4, CPU Bd., 834-5120) the center of activity for Sound. Called a Sound Generator, IC113 interfaces data and address bus, as well as the noise generators on the Sound Bd. (834-5122), through the 20 pin flat cable, enabling specific sounds processing circuits. These circuits consist of individual sounds for Player ship flying sounds, rebound, explosion, laser and alarm. Those complete sounds not originating within the 8255A-5 are enabled by the Sound Generator through the noise generators on the Sound Bd. IC28 and VR1 (Volume Control, Sht. 1, Zone 6-A, Sound Bd.) set input biasing for the Audio Amplifier LA446 at an 8 ohm load.



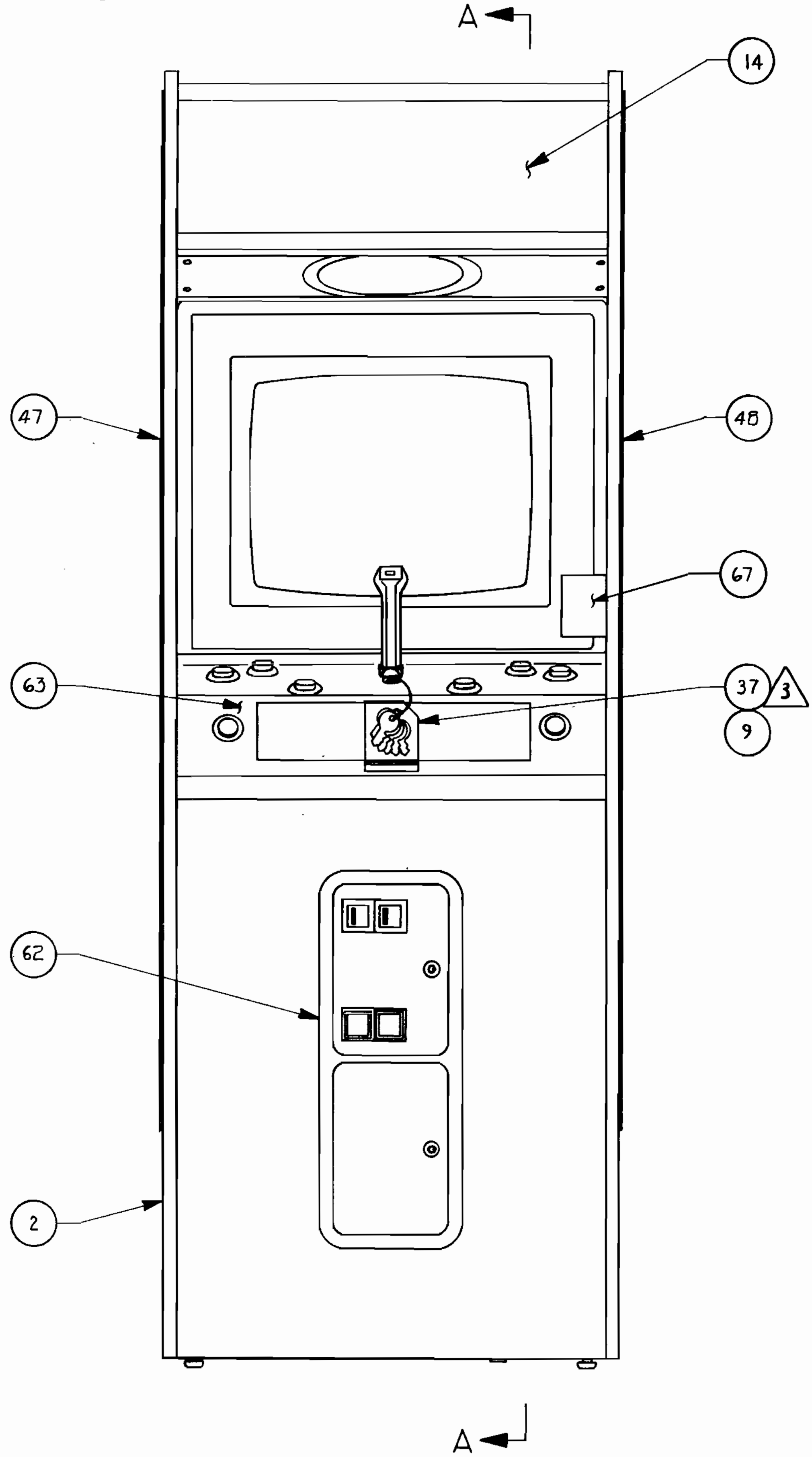
LOGIC BOARD BLOCK DIAGRAM

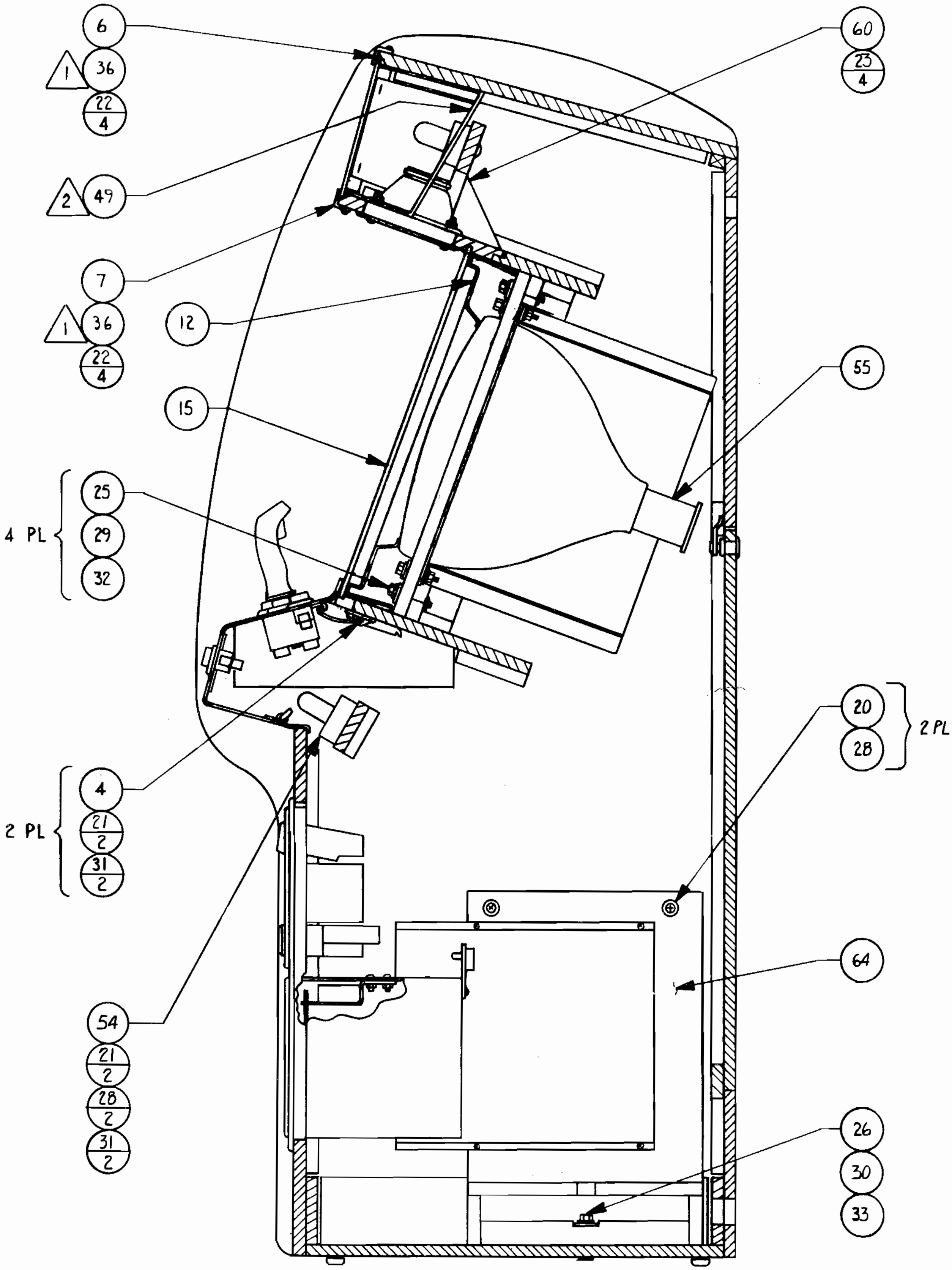
Upright Assemblies

ITEM NO.	PART NO.	QTY REQD.	DESCRIPTION
1	140-0021-00	1	Cover-J-Box
2	140-0104-01	1	Cabinet, Upright Model 103
3			
4	220-0178-00	2	Draw Catch
5	280-0495-00	1	Spring, Compression
6	250-0568-03	1	Moulding Panel, 85^{0}
7	250-0568-04	1	Moulding Panel, 100^{0}
8			
9	253-0238-00	1	Plastic Bag 3.00 x 4.00 Vinyl Transparent Zip Lock
10			
11	253-0281-00	1	Envelope 12.0 x 15.0 H.D. Clear 10 MIL PVC
12	253-0285-00	1	Bezel, Plastic, CRT Horizontal
13			
14	253-0300-00	1	Panel Logo
15	253-0302-00	1	Monitor Panel
16			
17	280-0005-00	40	Cable Tie
18	289-0002-04	1	Cable Clamp Nylon
19	280-0475-00	60	Staple
20	281-0045-28	2	SCR, 10-12 x 1.75 PN HD Phil, Sht Mtl, Type AB
21	281-0045-12	9	SCR, 10-16 x .75 PN HD Phil, Sht Mtl, Type AB
22	281-0134-12	8	SCR, 8-18 x .75 PN HD Phil, Sht Mtl, Type AB, Black
23	281-0185-24	4	SCR, 10-16 x 1.50 FL HD Phil, 82^{0} Sht Mtl, Type AB, Black
24			
25	282-0017-24	4	Bolt, 1/4-20 x 1.50 Hex Head, Mach Thd

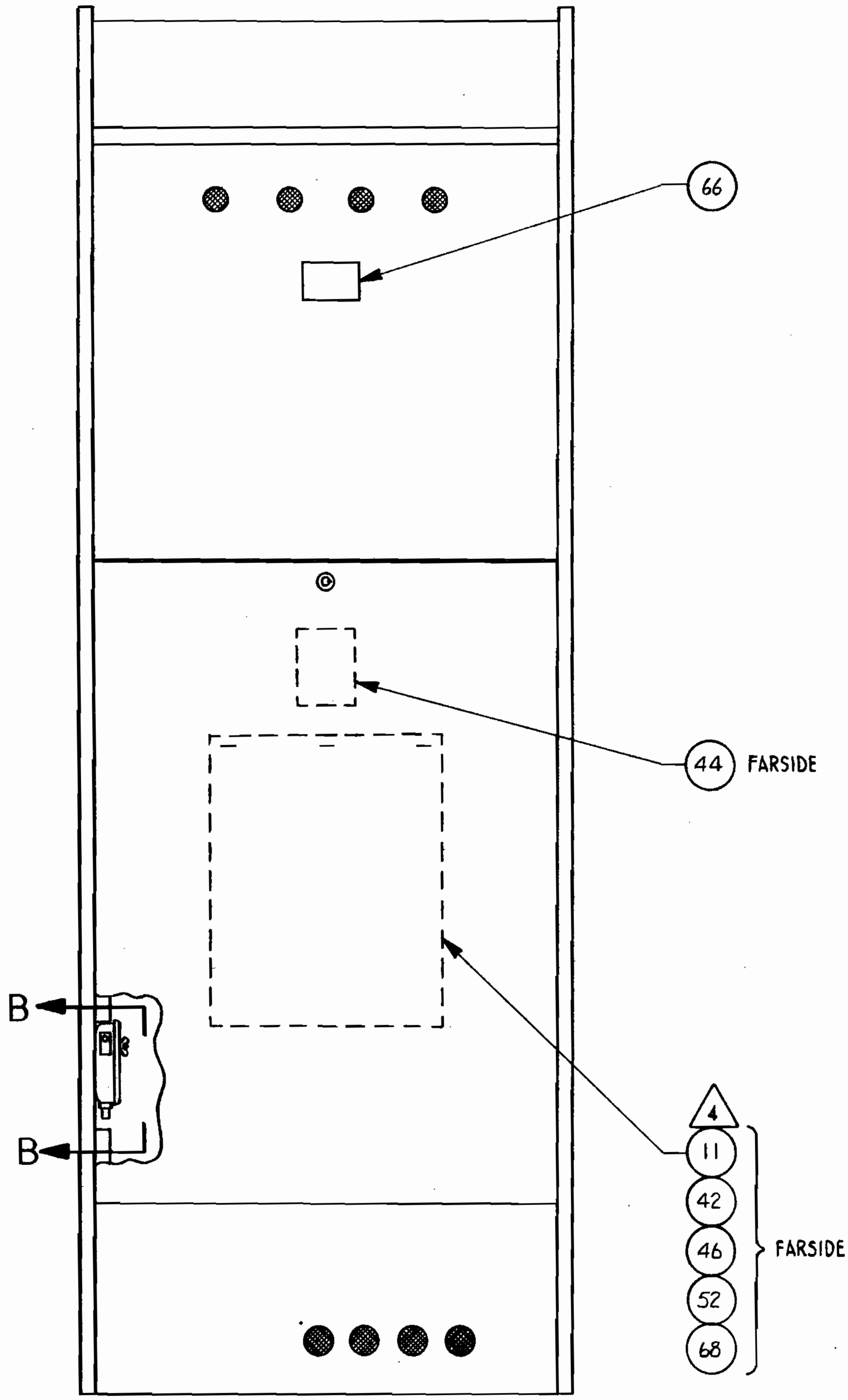
ITEM NO.	PART NO.	QTY REQD.	DESCRIPTION
26	282-0019-32	1	Bolt, 3/8-16 x 2.00 Hex HD, Mach THD
27			
28	283-0060-25	5	Washer, #10 Reg .203 I.D. x .562 O.D., Flt Stl
29	283-0060-34	4	Washer, 1/4 Lrg .281 I.D. x 1.25 O.D., Flt Stl
30	283-0060-40	1	Washer, 3/8 Reg .406 I.D. x 1.00 O.D., Flt Stl
31	283-0061-06	9	Washer, #10 Lock, Split, Steel
32	283-0061-08	4	Washer, 1/4 Lock, Split, Steel
33	283-0061-10	1	Washer, 3/8 Lock, Split, Steel
34	283-0071-14	1	Nut, Wing Steel 10-32 Mach THD
35			
36	320-0020-00	4'	Sealant Foam
37	320-0051-00	1'	Tie Ribbon, Wire, Plastic Coated
38			
39	420-0030-00	1	Decal, Caution 115V
40			
41			
42	420-0713-00	1	Advertising Pouch
43			
44	420-0793-00	1	Decal, Toll Free Number
45	420-0880-00	1	Decal, Box
46	420-0881-00	1	Manual
47	420-0892-00	1	Graphic-Left Side
48	420-0893-00	1	Graphic-Right Side
49	420-0864-00	1	Light Baffle
50			
51			
52	540-0007-00	1	Wrench for M5 Screw
53			

ITEM NO.	PART NO.	QTY REQD.	DESCRIPTION
54	800-0147-04	1	Assy, Fluorescent Lamp 2
55	800-0362-02	1	Assy, Monitor Color
56	800-0408-03	1	Assy, Gnd Strap Control Panel
57	800-0408-04	1	Assy, Gnd Strap Monitor
58			
59			
60	800-0415-01	1	Assy, Light, Speaker, Mod. 103 CAB
61	800-3244-00	1	Assy, Junction Box
62	800-3294-01	1	Assy, Coin System
63	800-3314-00	1	Assy, Control Panel
64	800-3315-00	1	Assy, Component Shelf
65			
66	420-0912-00	1	Decal, FCC Compliance Cabinet
67	420-0913-02	1	Decal, Original Game Seal
68	420-0917-00	1	Decal, FCC Compliance, Manual
69			
70			
71			
72			
73			
74			
	420-0780-02	REF	Shipping Kit


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4
12
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15
4 PL
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29
32
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2 PL
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33

SECTION A-A

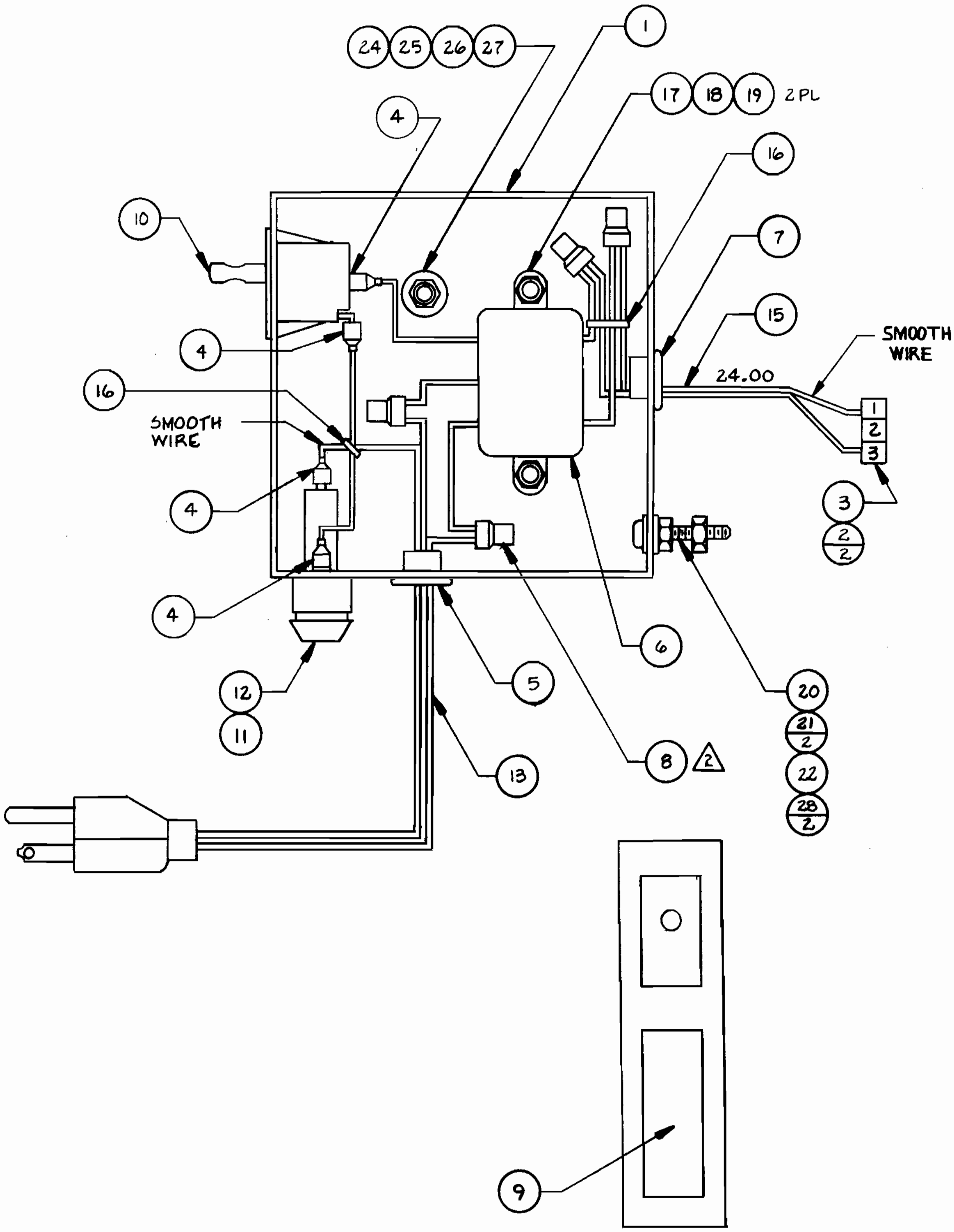


REAR VIEW

SCALE 1/5

AC JUNCTION BOX ASSEMBLY DRAWING NUMBER 800-3244

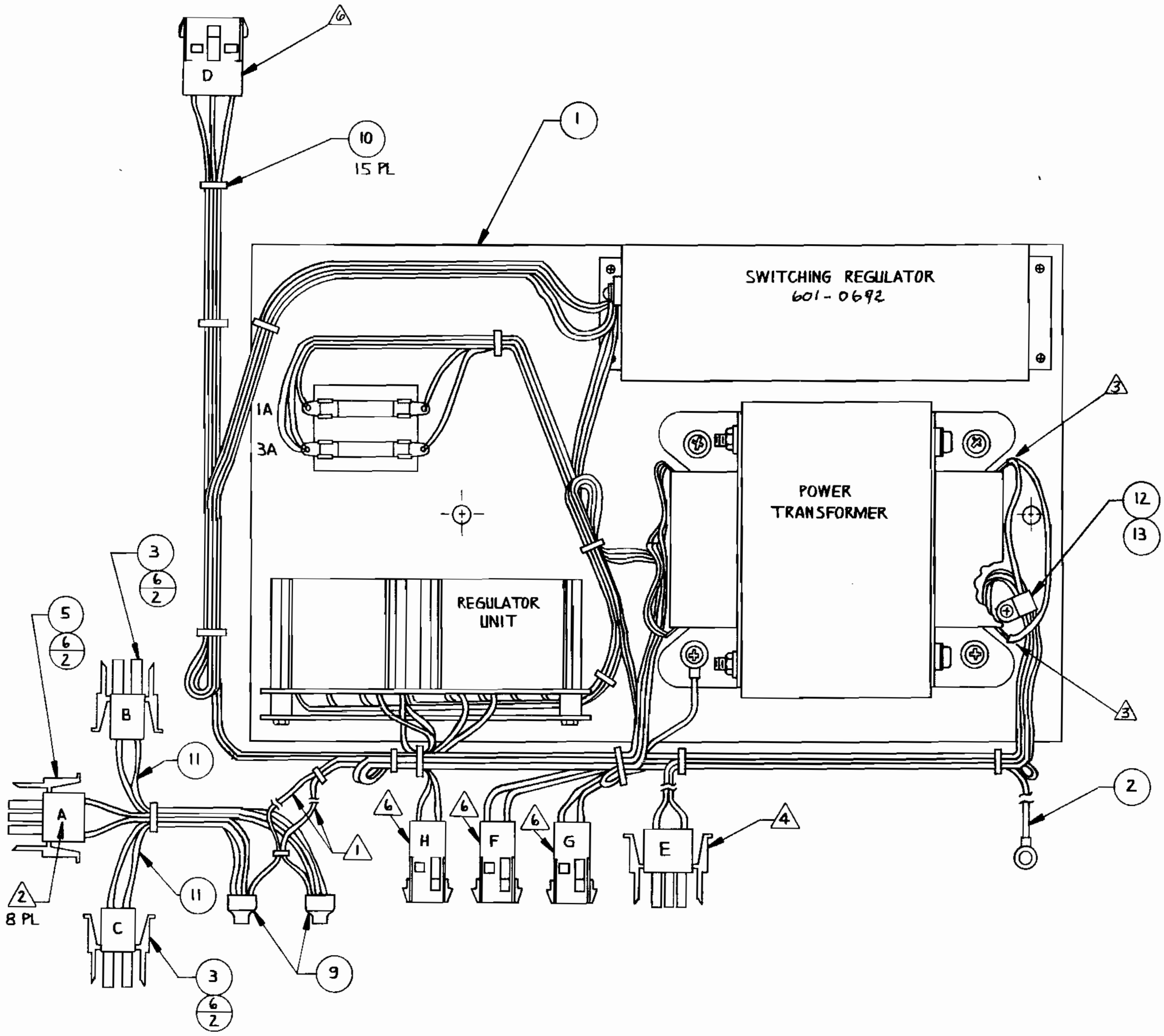
ITEM NO.	PART NO.	QTY. REQ'D	DESCRIPTION
1	140-0020	1	Junction Box Metal
2	211-0042	2	Conn Socket AMP
3	211-0060	1	Conn Female Cap 3-pin AMP
4	211-0164	4	Conn Quick 3/16 Female insulated
5	280-0361	1	Bushing S/Rel AC Cord
6	270-0001	1	Filter EMI
7	280-0007	1	Bushing S/Rel 1/2
8	280-0362	4	Electric Crimp Sleeve 24-18 AWG
9	420-0598	1	2 Amp Fuse Decal
10	510-0013	1	Switch SPDT Cherry
11	514-0001	1	Fuse 2 Amp 250V S.B.
12	514-0005	1	Fuse Holder
13	600-0001	1	3 Cond. Line Cord
14			
15	600-0079	2ft.	Zip Cord Line
16	280-0005	2	Cable Tie
17	281-0002-10	2	Scr. Pn.Hd. Phl. #6-32 X 0.625 Mach
18	283-0072-11	2	Nut Hx.Hd. #6-32 Mach
19	283-0062-04	2	Washer Lock Int. Tooth #6
20	281-0004-12	1	Scr. Pn.Hd. Phl. #8-32 X 0.750 Mach
21	283-0072-13	2	Nut Hx.Hd. #8-32 Mach
22	283-0062-05	1	Washer, Lock Int. Tooth #8
23			
24	283-0060-32	1	Washer, Flat Std. O.D. 1/4
25	283-0072-15	1	Nut, Hx.Hd. #10-24 Mach
26	282-0005-28	1	Bolt 10-24 X 1.75 Carr Hd. Mach Black
27	310-0016-16	1	Insul. Tubing 0.187 I.D.
28	283-0060-22	2	Washer #8 Flat Stl.


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SMOOTH WIRE
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ITEM NO	PART NO.	QTY REQD. -00	-01	-02	DESCRIPTION
1	834-0070-00	1	1	1	Pwr Supply Assy (SEGA FR-4100)
2	800-0370-00	1	-		Assy Gnd Strap
3	211-0043-00	2	2	2	Conn Plug Amp 2 Pin
4	800-0408-02	-	1		Assy, Ground Strap
5	211-0059-00	1	1	1	Conn Plug Amp 3 Pin
6	211-0042-00	6	6	10	Conn Socket
7	211-0047-00	-	-	1	Conn Cap 12P Amp
8	211-0186-00	-	-	2	Conn Spring Spade Awg 22-16
9	280-0359-00	2	2	2	Elec Crimp Sleeve
10	280-0005-00	15	15	15	Cable Tie
11	600-0079-00	1.75'	1.75'	1.75'	2 Cond Zip Cord
12	280-0324-00	1	1	1	Cable Clamp Nylon
13	281-0044-08	1	1	1	SCR 8-18 x 1/2" PN HD Type AB
14					
15	600-0092-50	-	-	1.66'	Wire 22 Awg Blk Elec Hookup Stranded
16	600-0092-41	-	-	3.33'	Wire 22 Awg Brn Elec Hookup Stranded
17	600-0092-42	-	-	1.66'	Wire 22 Awg Red Elec Hookup Stranded

POWER SUPPLY ASSEMBLY (SEGA FR-4100) DRAWING NUMBER 834-0070

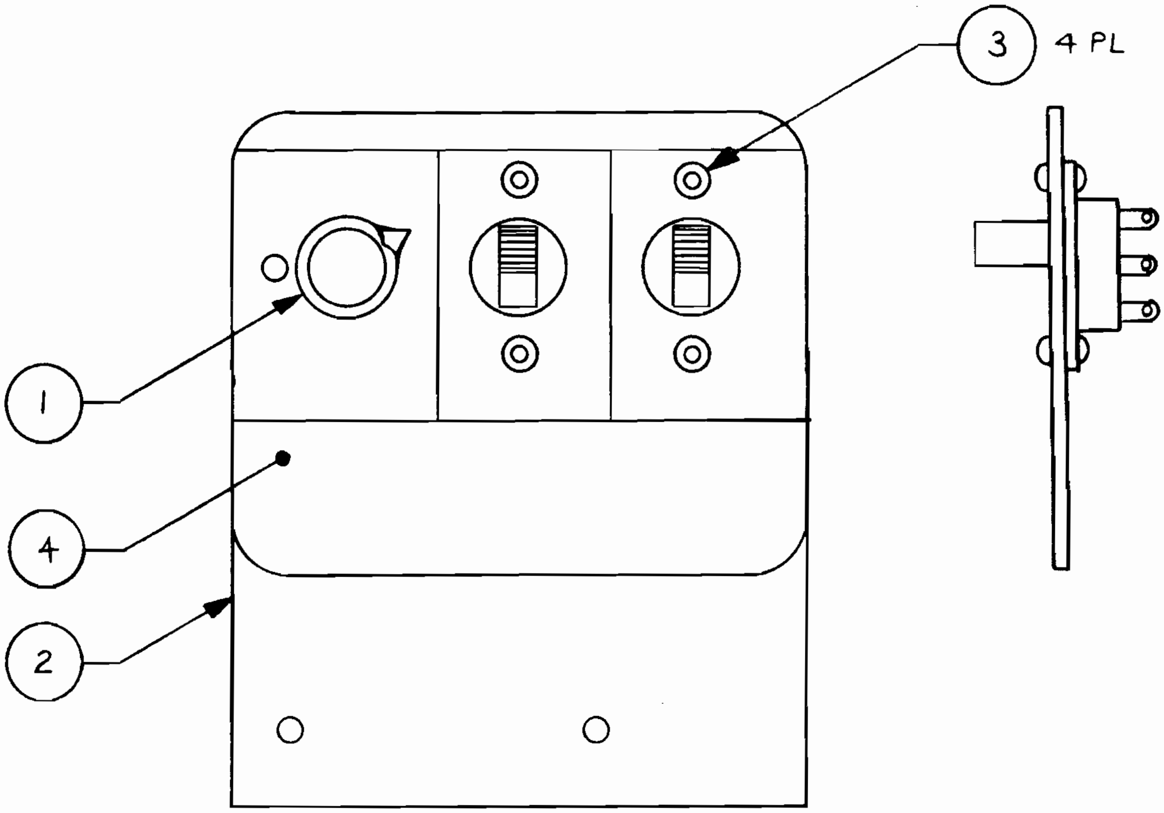
ITEM NO.	PART NO.	QTY.REQ'D.	DESCRIPTION
1	601-0612	1	Regulator Unit
2	560-0067	1	Power Transformer
3	421-5004	1	Fuse Instructions
4	420-0679	1	120V Warning Decal
5	105-0248	2	Bracket
6	601-0158	1	Switching Regulator
	601-0692	1	Switching Regulator
7	514-0033	1	Fuse, 1A
8	514-0036	1	Fuse, 3A
9	280-0297	2	One Touch Bushing
10	280-0389	2	One Touch Collar

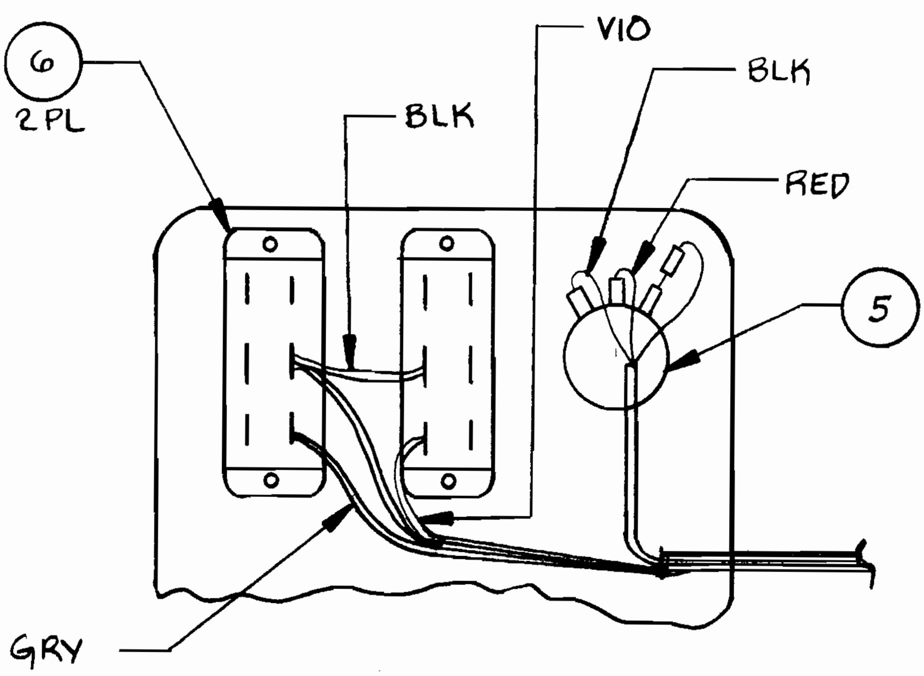

D
10
15 PL
1
SWITCHING REGULATOR
601-0692
1A
3A
POWER
TRANSFORMER
3
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2
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2
REGULATOR
UNIT
B
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A
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8 PL
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VOLUME CONTROL BLOCK ASSEMBLY

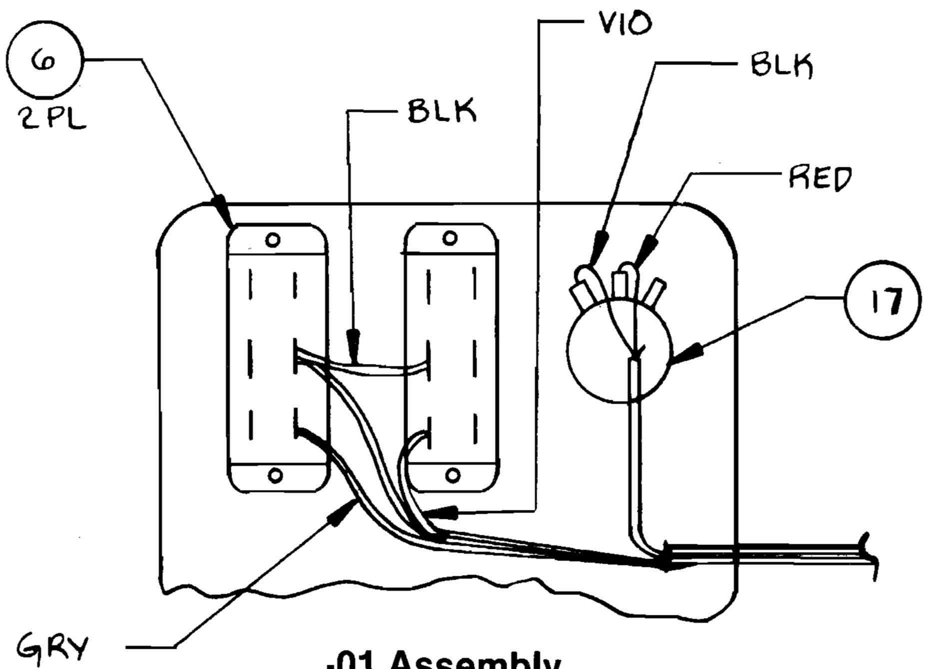
DRAWING NUMBER 800-3282

ITEM NO	PART NO.	QTY REQD. -00	-01	-02	DESCRIPTION
1	240-0001-00	1	1	1	Knob Vol Cont
2	250-0569-00	1	1	-	Brkt Vol Cont Blk
3	289-0003-14	4	4	4	Eyelet Rolled Flg. Hd.
4	420-0829-00	1	1	1	Decal, E-Z Adjust Cont
5	475-0007-00	1	-	2	Pot 10K Car Pnlmt
6	510-0051-00	2	2	1	SW Pshbtn Slide
7	420-0395-00	-	-	1	Decal Serv SW/Vol Cont
8	211-0041-00	5	5	6	Conn Pin Amp
9	211-0182-00	4	4	5	Term .110 x .020 22-18 Awg QK Fem Fully Insul
10	280-0005-00	4	4	3	Cable Tie
11	310-0041-02	.08'	-	.08'	Tubing .125 ID Clear Polyolefin Shrinkable
12	470-0101-00	1	-	1	Res 100 Ohm 1/4W, 5%
13	600-0029-00	1.38'	1.38'	-	CA 2 Cndct Shld 22 Awg
14	600-0092-47	1.46'	1.46'	.75'	Wire 22 Awg Vio
15	600-0092-48	1.54'	1.54'	-	Wire 22 Awg Gry
16	600-0092-50	1.62'	1.62'	.116'	Wire 22 Awg Blk
17	475-0034-00	-	1	-	Pot 200 Car Pnlmt
18	600-0013-00	-	-	3.1'	CA/Con Shld
19	600-0092-42	-	-	.75'	Wire 22 Awg Red
20	600-0092-44	-	-	.83'	Wire 22 Awg Yel
21	211-0005-00	-	-	2	Conn Crimp Lock, P24
22	212-0046-00	-	-	1	Conn Cap Amp 6 Pin
23	212-0005-00	-	-	1	Conn Fem Blk 4 Pin
24	250-0569-01	-	-	1	Brkt. Vol Cont Blk
25	211-0166-00	-	-	1	Conn Ring Lug #10
26	283-0063-04	-	-	1	Washer, #10 Lock, Ext Tooth, Star
27	283-0070-03	-	-	1	Nut. Nylon, Self Locking #10
28	281-0005-06	-	-	1	Scr. #10 x .375 Pn Hd Phil Mach

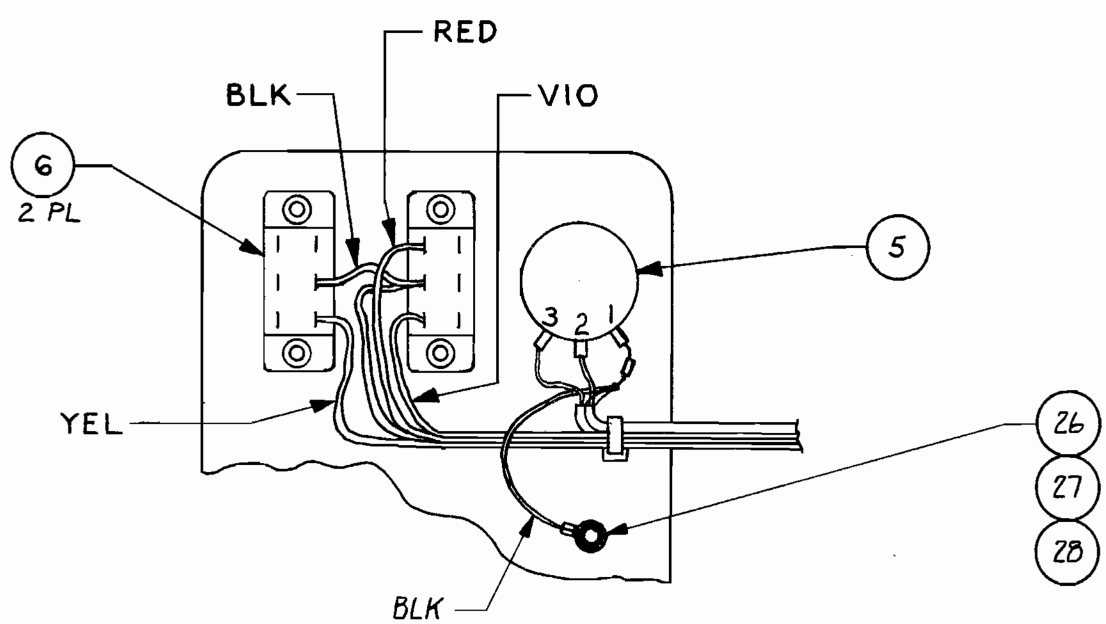




-00 Assembly

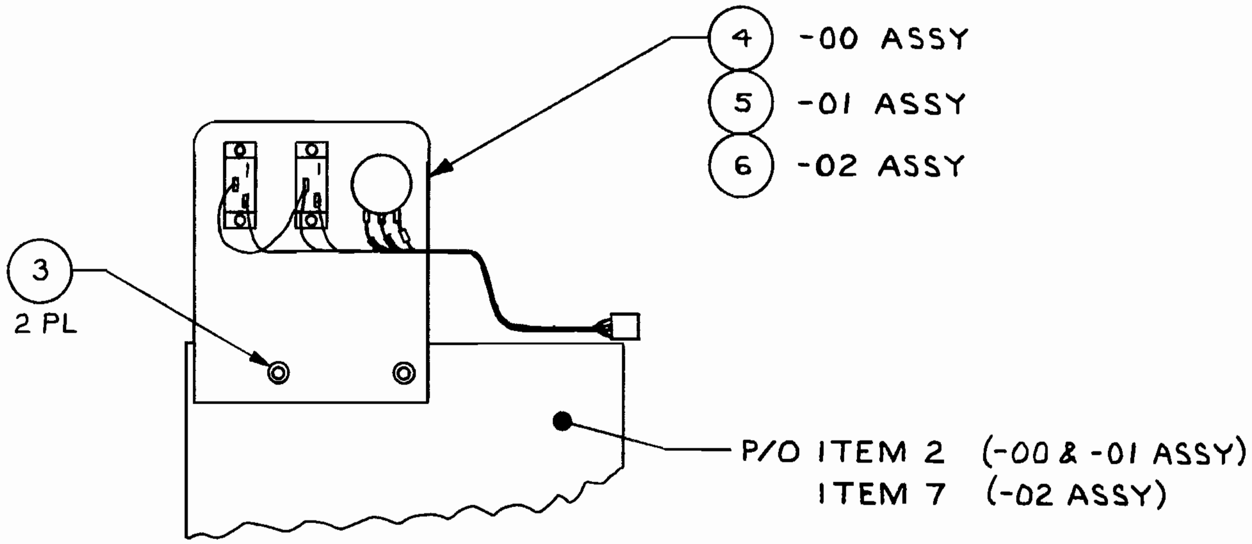


-01 Assembly

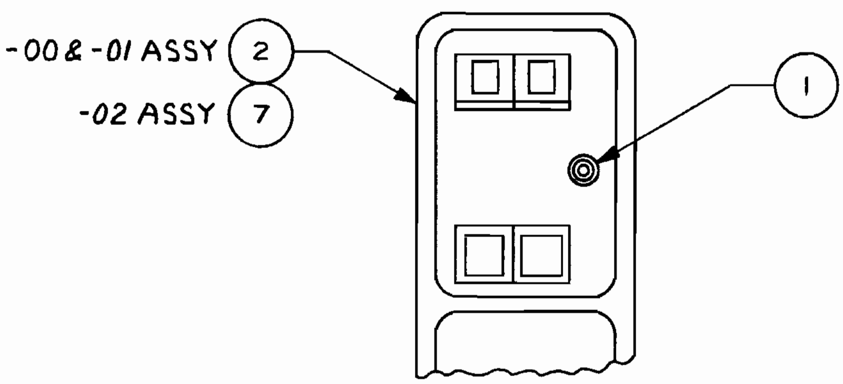


-02 Assembly

ITEM NO	PART NO.	QTY REQD. -00	-01	-02	DESCRIPTION
1	220-0212-00	1	1	1	Lock Panel 4-Way
2	220-0265-00	1	1	-	Coin Mech-Dbl Frame, Mini Door
3	285-0001-04	2	2	2	Rvt .125 dia x .250 lg, MDRL Pull, AL
4	800-3282-00	1	-	-	Vol Cont Blk Assy
5	800-3282-01	-	1	-	Vol Cont Blk Assy
6	800-3282-02	-	-	1	Vol Cont Blk Assy
7	220-0265-01	-	-	1	Coin Mech-Dbl Frame, Mini Door

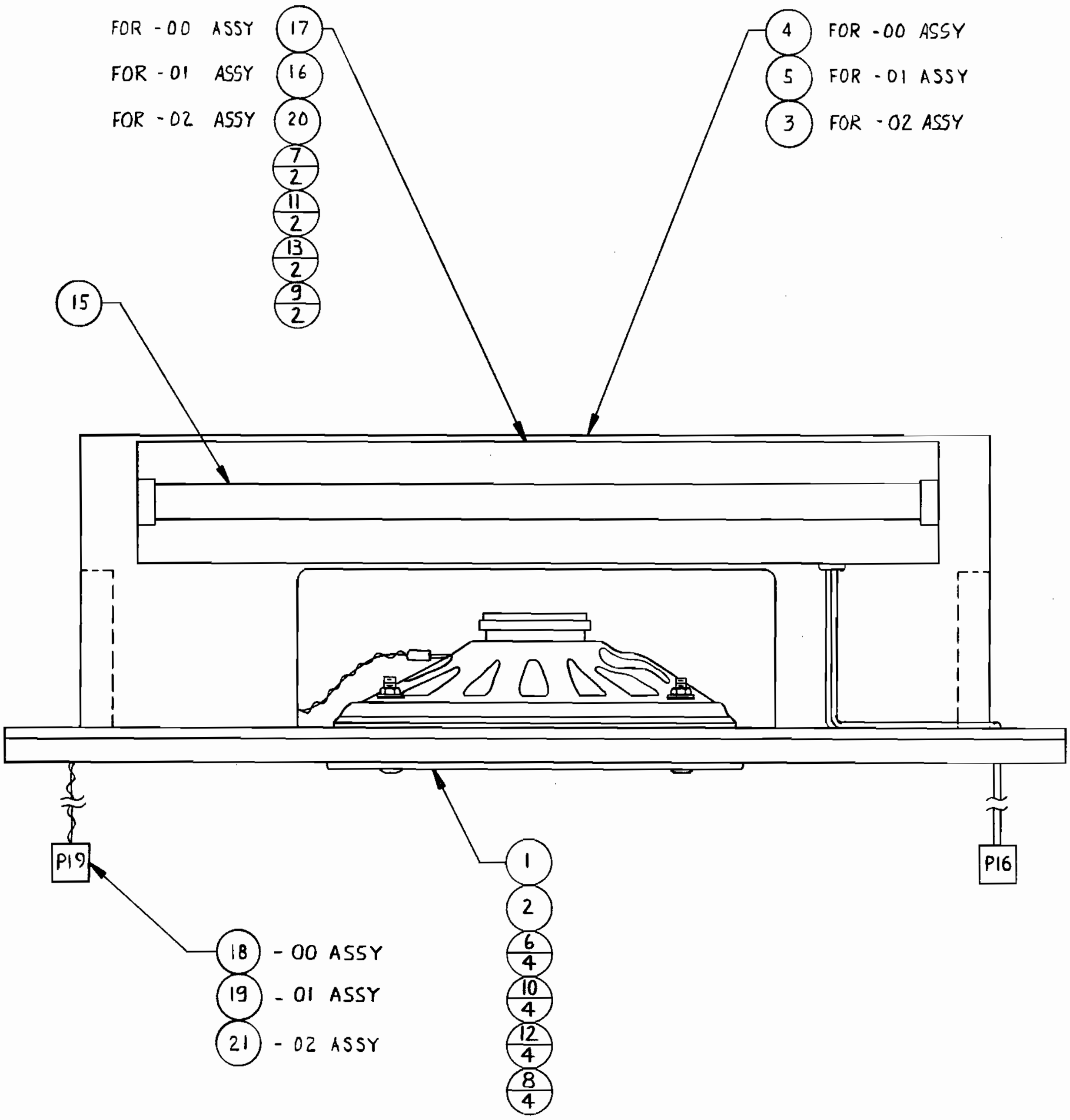


REAR VIEW OF
COIN ENCLOSURE



FRONT VIEW

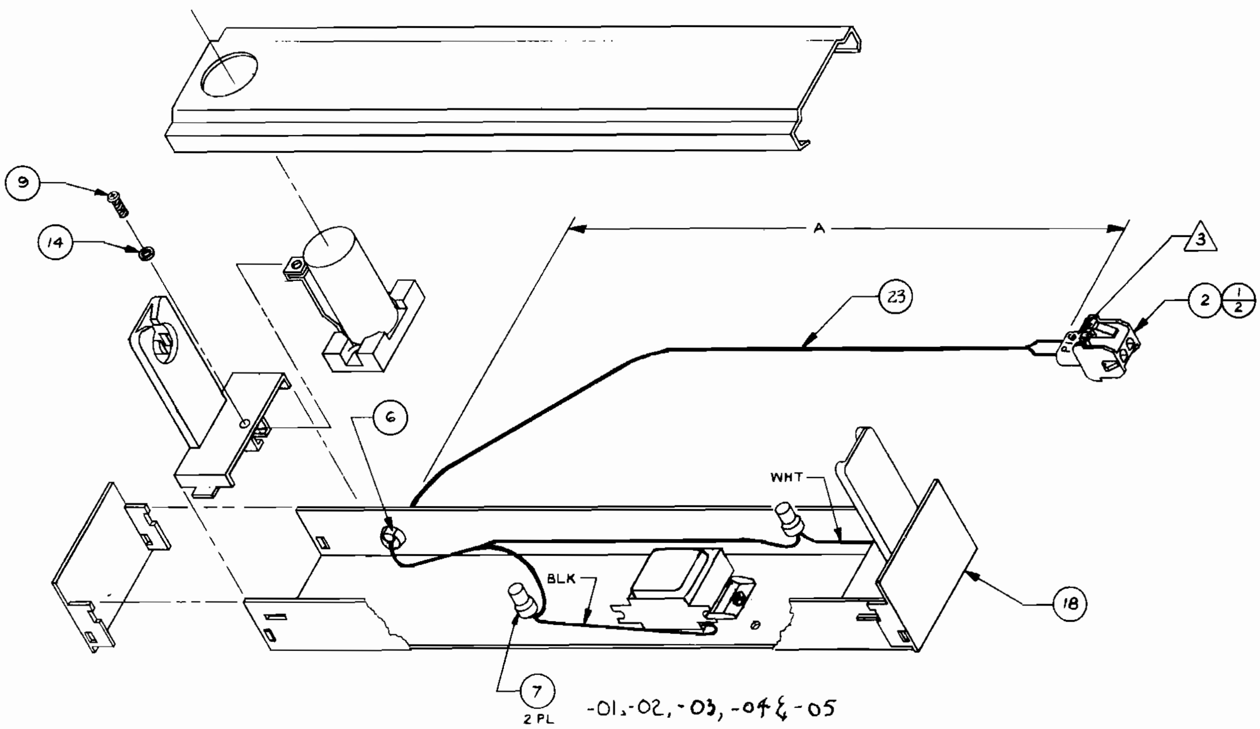
ITEM NO	PART NO.	QTY REQD. -00	-01	-02	DESCRIPTION
1	130-0002-00	1	1	1	Speaker, Cover
2	130-0020-00	1	1	1	Speaker, 6 x 9, 10W
3	252-0213-01	-	-	1	Panel, Speaker & Light
4	252-0213-00	1	-	-	Panel, Speaker & Light
5	252-0242-00	-	1	-	Panel, Speaker & Light
6	281-0014-28	4	4	4	SCR 8-32 x 1.75 lg. Ovh Phil Mach, THD Black
7	282-0005-20	2	2	2	BLT 10-24 x 1.25 lg Crg HD Mach, THD Black
8	283-0072-13	4	4	4	Nut 8-32 Hex, Mach THD
9	283-0072-15	2	2	2	Nut 10-24 Hex, Mach THD
10	283-0060-21	4	4	4	Wshr #8 Fl, Stl
11	283-0060-24	2	2	2	Wshr #10 Fl, Stl
12	283-0061-05	4	4	4	Wshr #8 Lock, Split, Stl
13	283-0061-06	2	2	2	Wshr #10 Lock, Split, Stl
14					
15	390-0019-00	1	1	1	Lamp Fluor
16	800-0147-02	-	1	-	Fluor Lamp Assy
17	800-0147-03	1	-	-	Fluor Lamp Assy
18	800-0371-00	1	-	-	Speaker Harness Assy
19	800-0412-00	-	1	-	Speaker Harn Assy
20	800-0147-05	1	-	1	Fluor Lamp Assy
21	800-0403-01	-	-	1	Speaker Harness Assy


FOR -00 ASSY 17
FOR -01 ASSY 16
FOR -02 ASSY 20
7/2
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13/2
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4 FOR -00 ASSY
5 FOR -01 ASSY
3 FOR -02 ASSY
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18 - 00 ASSY
19 - 01 ASSY
21 - 02 ASSY

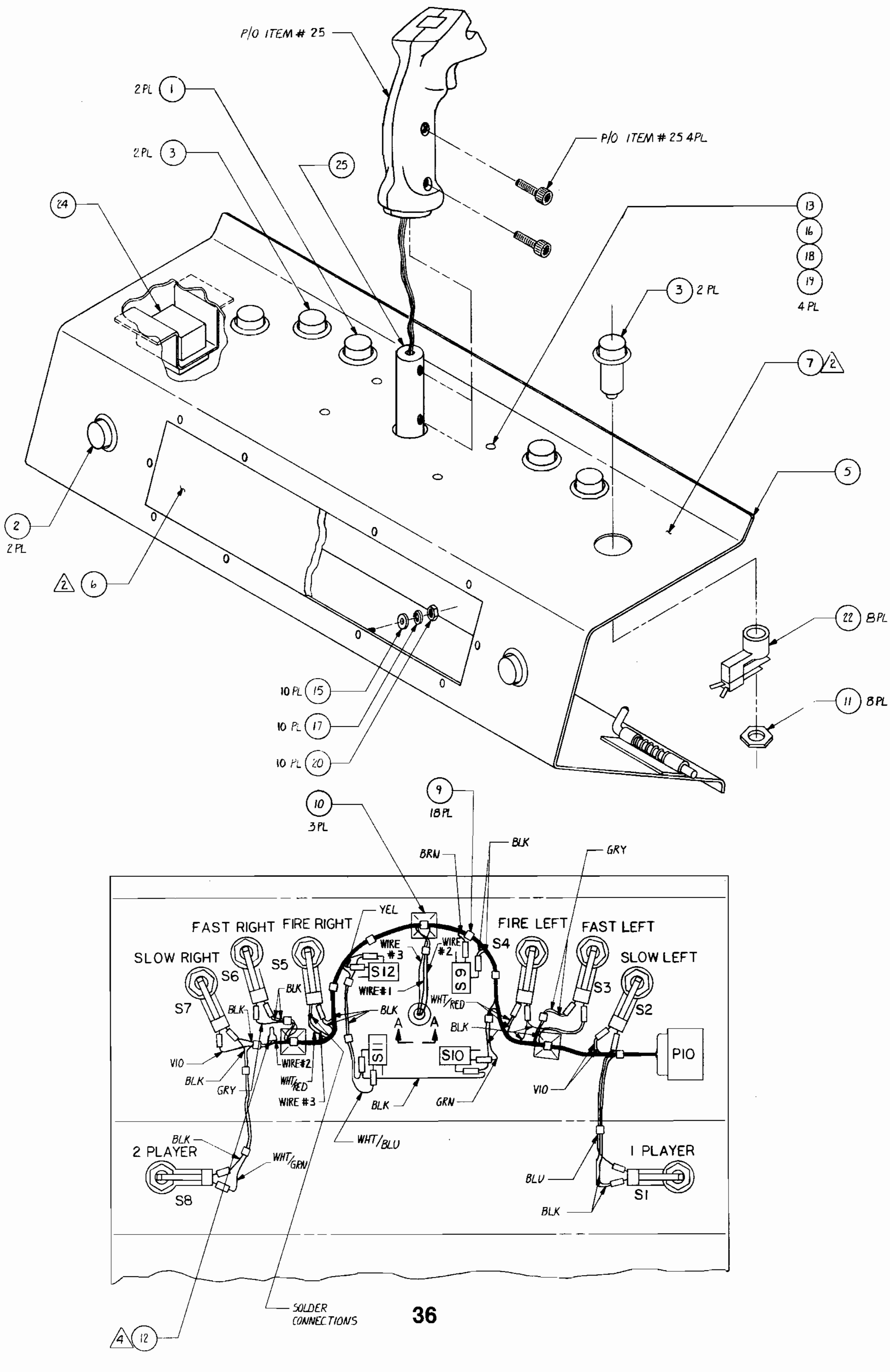
ITEM NO	PART NO.	QTY REQD. -00	-01	-02	-03	-04	DESCRIPTION
1	211-0041-00	2	2	2	2	2	Conn Pin Amp
2	211-0044-00	1	1	1	1	1	Conn Cap Amp 2 Pin
3							
4	211-0166-00	1	-	-	-	-	Conn Crimp Ring #10
5							
6	280-0361-00	-	1	1	1	1	Bshg Str Rlf AC Cord
7	280-0362-00	-	2	2	2	2	Elec Crp SL 24-18 Awg
8							
9	281-0002-06	1	1	1	1	1	Scr #6-32 x .375 Pan HD, Phil, Mach THD
10							
11							
12							
13							
14	283-0060-19	-	1	1	1	1	Washer #6 Flat, Steel
15							
16							
17	390-0083-00	1	-	-	-	-	Fluor Lamp Fxt 18 In
18	390-0117-00	-	1	1	1	1	Fluor Lamp Fxt 18 In U.L.
19							
20							
21							
22							
23	600-0079-00	-	5.9'	7.6'	4.0'	4.4'	CA 2 Cond Zip Cord

Flourescent Lamp 2 Assembly

800-0147



ITEM NO	PART NO.	QTY REQD. -00	DESCRIPTION	REF DES.
1	240-0006-00	2	Button Plunger, Red	S4, S5
2	240-0009-00	2	Button Plunger, Yel	S1, S8
3	240-0109-00	4	Button Plunger, Orn	S2, S3, S6, S7
4	211-0041-00	1	Conn Pin Amp	
5	250-0596-00	1	Control Panel, Metal	
6	252-0296-00	1	Logo Support, Control Panel	
7	253-0301-00	1	Graphic, Control Panel	
8				
9	280-0005-00	18	Cable Tie	
10	280-0327-00	3	Base Tie Wrap	
11	280-0329-00	8	Nut, Hex Pal 1/2-13	
12	280-0362-00	1	Elec, Crimp Sleeve 24-18 Awg	
13	282-0005-12	4	Bolt 10-24 x .750 lg. Crg HD Mach THD, Blk	
14				
15	283-0060-19	10	Washer-Flt, Stl Reg #6 .156 I.D. x .438 O.D.	
16	283-0060-25	4	Washer-Flt, Stl Reg #10 .203 I.D. x .562 O.D.	
17	283-0061-04	10	Washer-Lock, Split, Stl #6	
18	283-0061-06	4	Washer-Lock, Split, Stl #10	
19	283-0070-03	4	Nut-Hex, Self Locking, Mach THD #10-24	
20	283-0072-11	10	Nut-Hex, Mach THD #6-32	
21				
22	510-0064-00	8	Switch-Pushbutton, Metal Panel	
23				
24	800-3318-00	1	Assy, Harness Control Panel	
25	834-0462-00	1	Assy, Joystick 8-Way-Silver	

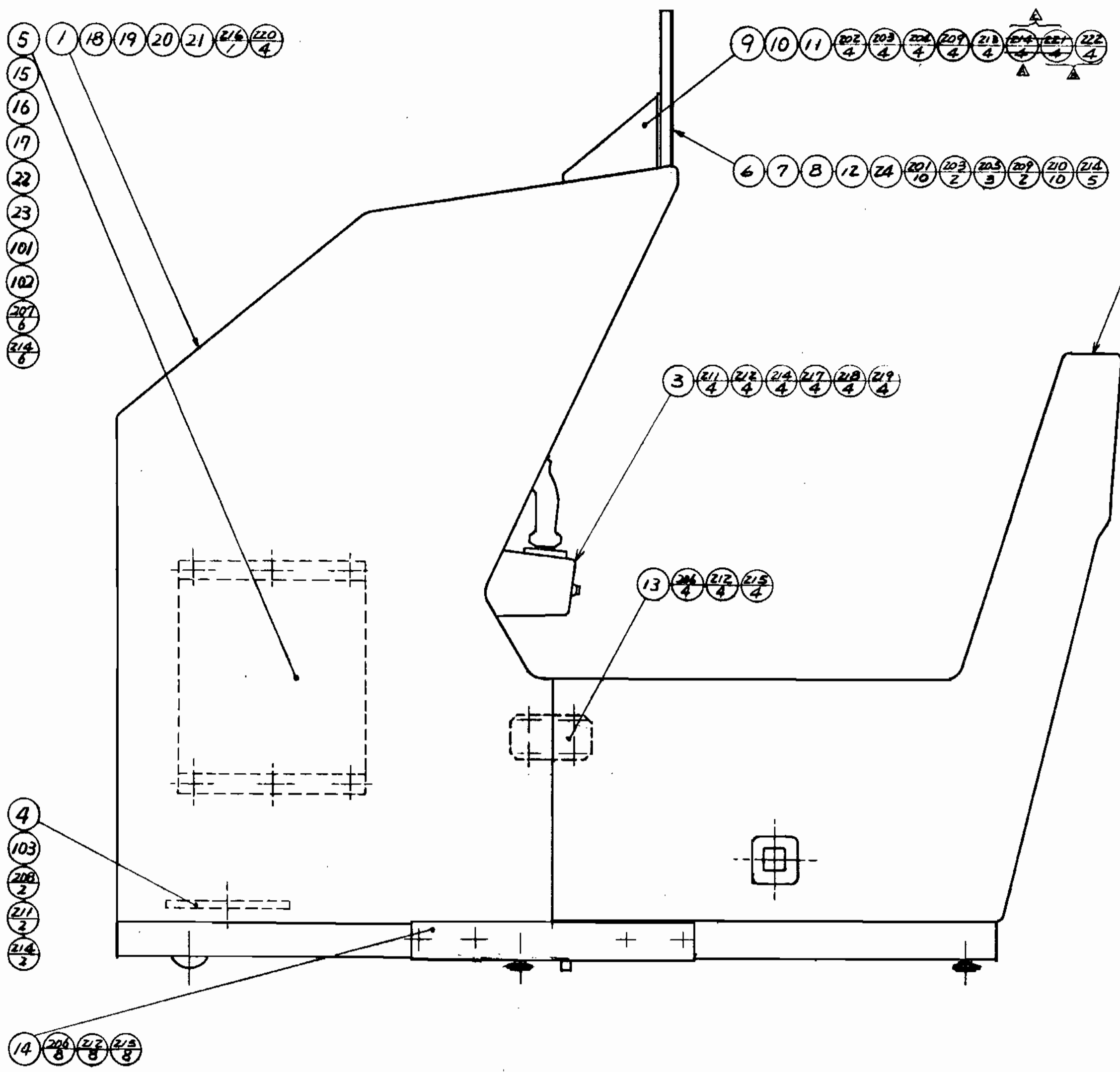

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2PL 3
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P/O ITEM # 25 4PL
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4 PL
3 2 PL
7 2
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2PL
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22 8PL
11 8PL
10 PL 15
10 PL 17
10 PL 20
9
18PL
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3PL
BRN
BLK
GRY
YEL
FAST RIGHT
FIRE RIGHT
FIRE LEFT
FAST LEFT
SLOW RIGHT
SLOW LEFT
S6
S5
S4
S3
S2
S7
WIRE #3
WIRE #2
S12
S9
WIRE #1
WHT/RED
BLK
S11
S10
P10
VIO
GRY
WIRE #2
WIRE #3
GRN
WHT/BLU
2 PLAYER
1 PLAYER
WHT/GRN
S8
S1
BLU
4 12
SOLDER CONNECTIONS

Cockpit Assemblies

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	834-0471	1	Assy Cabinet, front
2	834-0472	1	Assy Cabinet, rear
3	834-0473	1	Assy Control Lever
4	834-0474	1	Assy Power Supply
5	834-0475	1	Assy IC Board Case
6	601-0876	1	Billboard
7	601-0877	1	Ornament Frame
8	105-0343	1	L Bracket 639
9	109-0064	1	Holder, left
10	109-0065	1	Holder, right
11	280-0504	2	Hinge 133
12	280-0505	1	Hinge 285
13	117-0229	1	Connecting Plate
14	105-0298	2	Connecting Bracket
20	421-5137	1	Adjustment Instructions Sheet, Boom 909
22	600-5016	1	Assy FEM & Flat Cable, 40P (L=900)
23	834-5119	1	Assy IC Board, Zoom-909 W/C
24	117-0230	1	Display Plate, Zoom-909
101	420-5028	1	Display Manual, 20" 200-0039 (NANAO MC-2000-5)
102	421-5005	1	Adjustment Instructions Sheet
103	211-0167	5	Terminal Lug, round ID5
104	834-0476	1	Assy Harness, phone, wire harn jack
105	834-0477	1	Assy Harness, power score board, wire harn
106	834-0478	1	Assy Harness, coin meter
107	834-0479	1	Assy Harness, coin switch
108	834-0480	1	Assy Harness, volume control
109	834-0481	1	Assy Harness, control lever
110	834-0482	1	Assy Harness, power IC board

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
111	834-0483	1	Assy Harness, power sound board
112	834-0484	1	Assy Harness, power score board
113	834-0485	1	Assy Harness, speaker
114	834-0486	1	Assy Harness, fluorescent lamp
115	834-0487	1	Assy Harness, fan motor
116	834-0488	1	Assy Harness, noise filter
117	834-0489	1	Assy Harness, AC power
118	834-0490	1	Assy Harness, ground
201		10	Carriage Bolt, unichrome special ISO, M4 x 14
202		4	Tamper Proof Screw, TH ZMC3 black ISO, M4 x 8
203		6	Tamper Proof Screw, TH ZMC3 black ISO, M5 x 12
204		4	Tamper Proof Screw, TH ZMC3 black ISO, M5 x 76
205		3	Tamper Proof Screw, TH ZMC3 black ISO, M5 x 20
206		12	Tamper Proof Screw, FH ZMC3 black, M8 x 30
207	285-0005-25	6	M Screw, P H Phill ISO, M5 x 25
208	285-0005-30	2	M Screw, P H Phill ISO, M5 x 30
209	280-0294-00	6	T-Nut, ISO, M5
210		10	Flange Nut, 130 serrated type, M4 (O.D.=10)
211	280-0289-00	6	Flat Washer, special, 5.6-19.1 x 1.2
212		16	Flat Washer, special ZMC3 black, 8.5-22 x 1.6
213		4	Spring Washer, ZMC3 black, M4(#2)
214		17	Spring Washer, ZMC3 black, M5(#2)
215		12	Spring Washer, ZMC3 black, M8(#2)

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
216	285-0004-35	1	M Screw, P H Phill ISO, M4 x 35
217		4	Carriage Bolt, ZMC3 black special ISO, M5 x 25
218		4	Tamper Proof Screw, TH ZMC3 black ISO, M8 x 12
219	287-0072-05	4	Hex Nut, ISO, M5
220		4	Screw Nail, T H stainless, 1.5 x 16
222		4	F Washer, ZMC3 black, M5

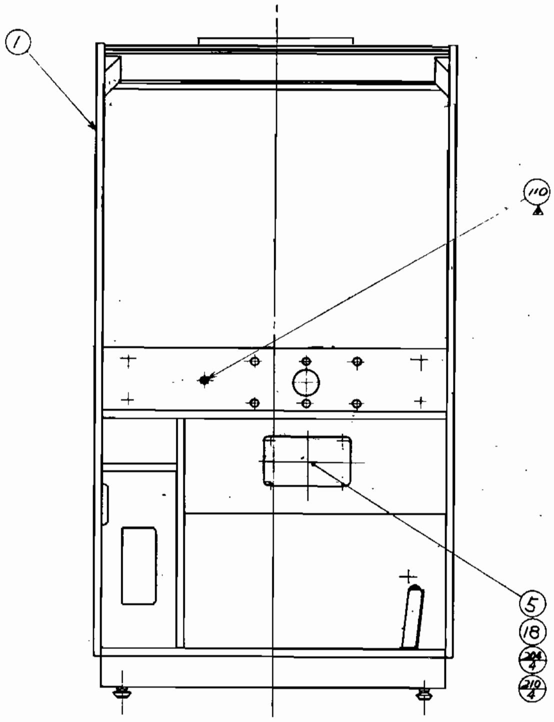


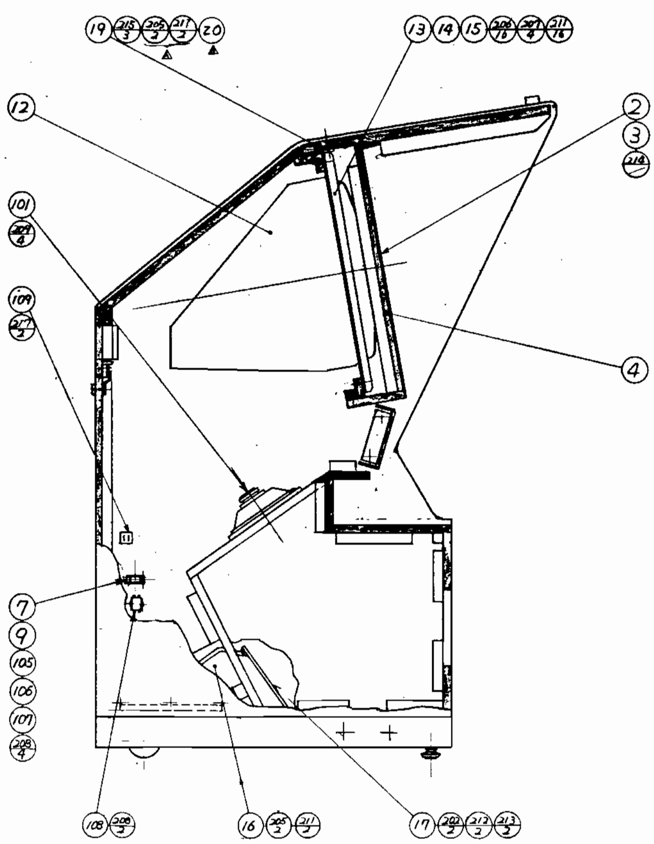
ASSY CABINET FRONT

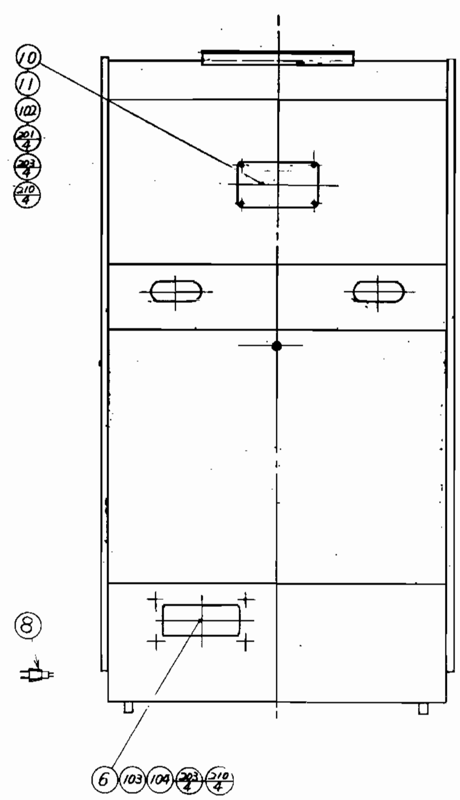
DRAWING NUMBER 834-0471

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	834-0495	1	Assy Sub Cabinet, front
2	601-0880	1	Window Panel
3	420-0944	1	Play Instruction, decal
4	834-0494	1	Assy Score Board
5	117-0232	1	Speaker Guard Plate
6	140-0062	1	Cover
7	105-0064	1	Main Switch, bracket
8	600-0078	1	Cable & Plug Assy
10	105-0333	2	Fan, bracket
11	117-0123	1	Guard Plate
12	200-0039	1	Color Display Assy, 20 type 100V (NANAO MC - 2000-5)
13	105-0246	2	Mounting Bracket
14	105-0255	2	Bracket A
15	105-0256	2	Bracket B
16	834-0106	1	Accelerator, mechanism assy
17	601-0556	1	Accelerator, pedal assy
18	601-0801	1	Speaker Board
19	105-0348	1	L Brk 340
20	601-0881	2	Sleeve
101	130-0018	1	Speaker, 16 cm 82
102	260-0011	1	Axial Flow Fan, AC100V 50-60 Hz
103	280-0417	1	Terminal Binding Post, black
104	280-0418	1	Bushing Strain Relief, 8.0
105	509-0059	1	Switch, push button type
106	509-0049	1	Switch, stopper 12
107	601-0444	1	C&R Combination Element, 0.1 F & 120B
108	601-0429	1	Noise Filter, AC 250V 4A
109	601-0484	1	Outlet, AC type
110	210-5001	1	Phone Jack
111	116-0068	1	Plate, terminal IL3PA

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
112	463-0029	1	Res, 120 ohm 5W cer
201		4	M Screw, P H Phill W/F & S washer, M3 x 10
202		2	Tamper Proof Screw, P H ZMC3 black ISO, M5 x 20
203	280-0277-00	8	Carriage Bolt, ZMC3 black special ISO, M4 x 25
204		4	Carriage Bolt, ZMC3 black special ISO, M4 x 30
205		4	Carriage Bolt, ZMC3 black special ISO, M5 x 25
206		16	Hex Bolt, ISO W/F & S washer, M5 x 14
207		4	Hex Bolt, ISO W/F & S washer, M5 x 25
208		7	Wood Screw, R H Phill, 3.1 x 13
209		4	Wood Screw, R H Phill W/F washer, 3.5 x 16
210		12	Flange Nut, ISO serrated type, M4 (O.D.=10)
211		20	Flange Nut, ISO serrated type, M5 (O.D.=11)
212		2	Flat Washer, ZMC3 black, M5
213	280-0288-00	2	Spring, washer, M5 (#2)
215	280-0258-00	3	M Screw, P H Phill ISO W/F & S washer, M4 x 8
217		2	Wood Screw, F H Phill, 3.5 x 16

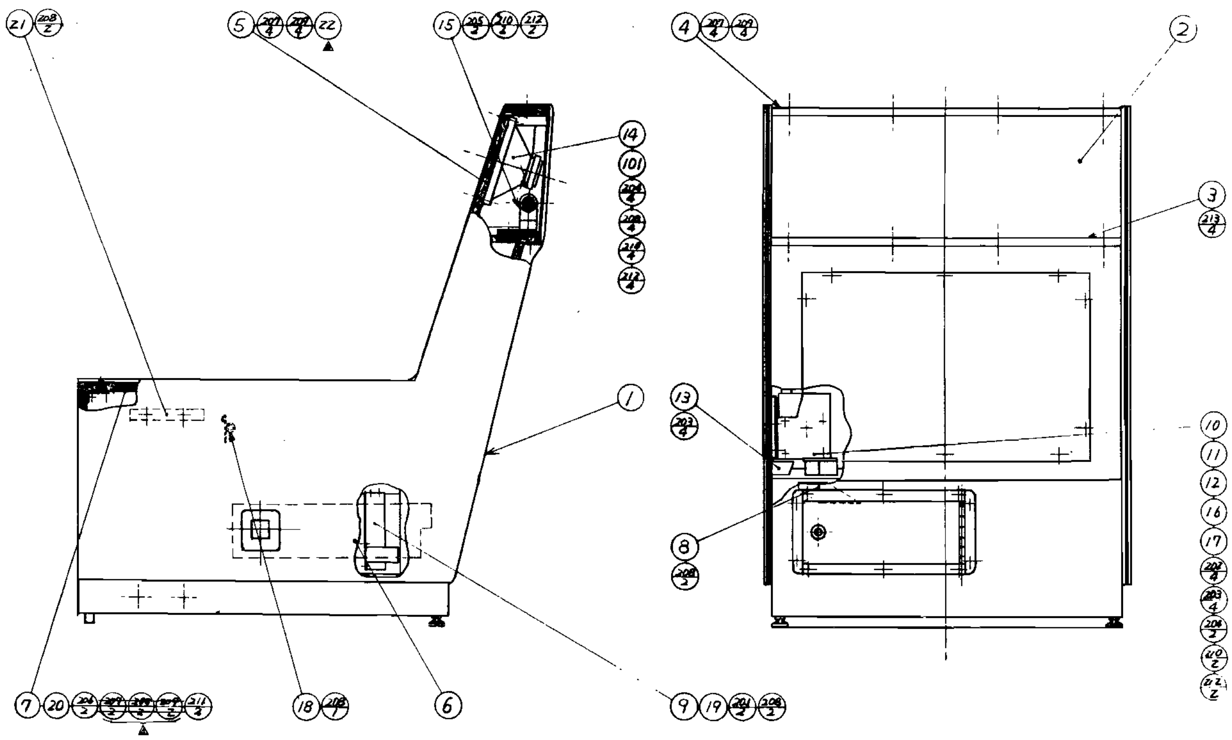






ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	834-0496	1	Assy Sub Cabinet, rear
2	117-0230	1	Display Plate
3	105-0349	1	L Bracket, 668
4	115-0021	1	Ornament
5	117-0233	1	Guard Plate
6	220-0283	1	Cash Box
7	834-0497	1	Assy Coin Entry
8	220-0285	1	Lower Coin Chute
9	105-0350	1	Coin Meter Bracket
10	102-0061	1	Coin Chute Base
11	105-0351	1	Coin Chute Bracket
12	220-0286	1	Coin Acceptor
13	220-0287	1	Reject Chute
14	601-0801	1	Speaker Board
15	834-0492	1	Fluorescent Light Assy, 15W
16	105-0007	1	Coin Chute, bracket assy
17	220-0136	1	Coin Chute, rejector type
18	109-0045	1	Key Holder
21	834-0493	1	Control Unit Assy
101	130-0018	1	Speaker, 16 cm 8Ω
102	220-0240	1	Mag Cntr, 6 digits dc 5V
201	280-0265-00	2	M Screw, P H Phill ISO W/F washer, M3 x 6
202	280-0267-00	4	M Screw, P H Phill ISO W/S washer, M4 x 8
203	280-0258-00	8	M Screw, P H Phill ISO W/F & S washer, M4 x 8
204	285-0005-25	6	M Screw, P H Phill ISO, M5 x 25
205	285-0005-30	2	M Screw, P H Phill ISO, M5 x 30
206		2	Tamper Proof Screw, T H ZMC3 black ISO, M5 x 35

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
207		8	Carriage Bolt, ZMC3 black special ISO, M5 x 25
208		11	Wood Screw, R H Phill W/F washer, 3.5 x 16
209		8	Flange Nut, ISO serrated type, M5 (O.D. #11)
210	287-0060-05	8	Flat Washer, M5
211		2	Flat Washer, ZMC3 black, M5
212	280-0288-00	8	Spring Washer, M5 (#2)
213		4	Tamper Proof Screw, T H ZMC3 black ISO, M5 x 16



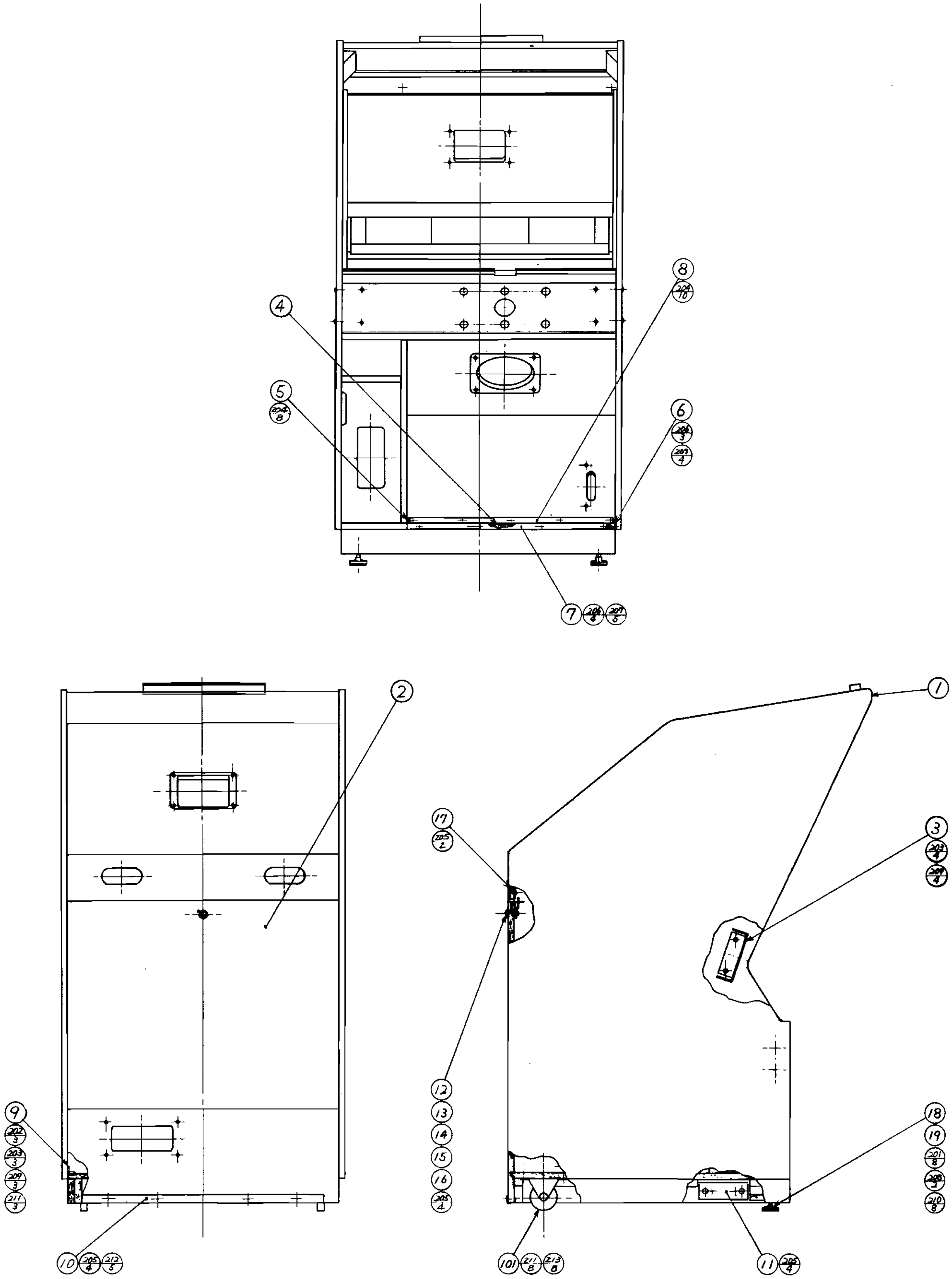
ASSY SUB CABINET FRONT DRAWING NUMBER 834-0495

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	140-0114	1	Wooden Cabinet, front
2	140-0115	1	Service Door
3	601-0885	1	Protector
4	601-0886	1	Floor Mat, front
5	105-0357	1	L Bracket, 330
6	105-0358	1	L Bracket, 346
7	105-0359	1	L Bracket, 494
8	105-0360	1	L Bracket, 508
9	105-0361	1	L 25 x 25 Angle, 250
10	601-0841	1	Protector A
11	117-0183	2	Nut Plate
12	105-0269	1	Bracket
13	220-0224	1	Ace Cylinder Lock, LS type master W/O key
14	220-0225	1	Key, master
15	280-0401	1	Tongue, locking
16	117-0062	1	Plate Lock, retainer
17	117-0063	1	Tongue, retainer plate
18	601-0753	2	Leg Adjuster
19	105-0268	2	Leg Adjuster, bracket
101	601-0091	2	Caster
201	285-0005-20	8	M Screw, P H Phill ISO, M5 x 20
202		3	Hex Bolt, M8 x 20
203		7	Tamper Proof Screw, TH ZMC3 black, M8 x 25
204		18	Wood Screw, R H Phill ZMC3 black, 3.1 x 16
205		14	Wood Screw, R H Phill W/F washer, 3.5 x 16
206		7	Wood Screw, O H Phill chromed, 3.1 x 13

ASSY SUB CABINET FRONT

DRAWING NUMBER 834-0495

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
207		9	Wood Screw, O H Phill chromed, 3.1 x 20
208	283-0072-23	2	Hex Nut, 3/8 - 16
209		7	Flat Washer, special ZMC3 black, 8.5-22 x 1.6
210	280-0288-00	8	Spring Washer, M5 (#2)
211		11	Spring Washer, M8 (#2)
212		5	Screw Nail, thin H stainless, 1.5 x 16
213		8	Hex Bolt, M8 x 25



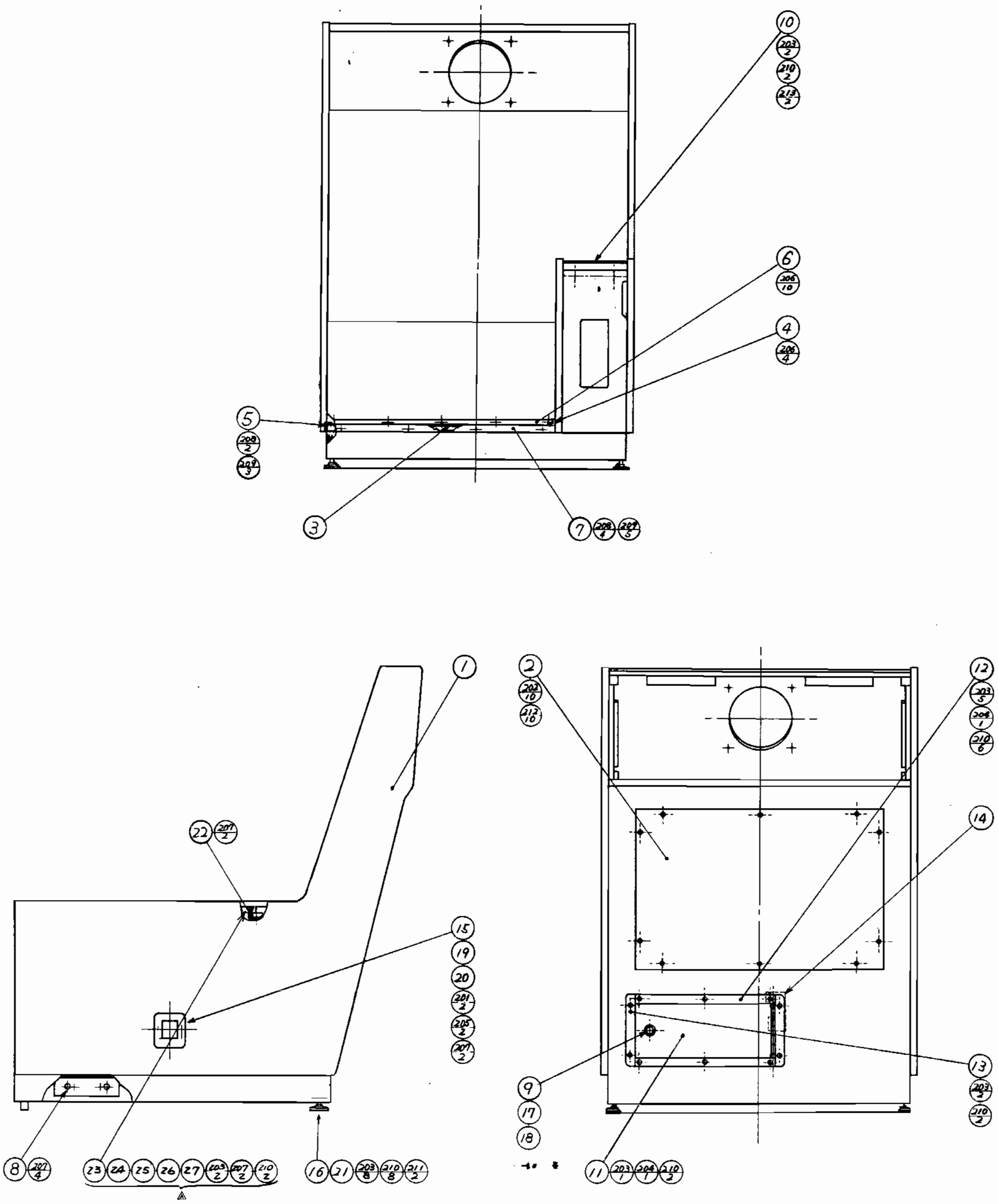
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ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	140-0112	1	Wooden Cabinet, rear
2	140-0113	1	Service Door
3	601-0882	1	Floor Mat, rear
4	105-0353	1	L Bracket, 198
5	105-0352	1	L Bracket, 222
6	105-0354	1	L Bracket, 494
7	105-0355	1	L Bracket, 494
8	117-0183	2	Nut Plate
9	601-0789	1	Locking Tongue
10	280-0506	1	Hinge, 144
11	220-0290	1	Cash Box Door
12	601-0883	2	Door Protector, A
13	601-0884	1	Door Protector, B
14	105-0356	1	Lock Bracket
15	220-0288	1	Reject Chute
16	105-0166	2	Leg Adjuster Bracket
17	220-0097	1	Ace Cyl Lk, w/keys
18	280-0406	1	Spacer Ring, turbo
19	601-0416	1	Reject Cup & Flap Door Assy
20	117-0009	2	Retainer Plate
21	601-0753	2	Leg Adjuster
22	117-0063	1	Tongue Retainer Plate
23	220-0289	1	Coin Chute Door
24	220-0224	1	Ace Cylinder Lock, LS type master W/O key
25	220-0225	1	Key Master
26	117-0062	1	Plate Lock Retainer
27	280-0401	1	Tongue, locking
201		2	M Screw, P H Phill ISO W/F & S washer, M3 x 14
202		10	Tamper Proof Screw, P H ZMC3 black ISO, M5 x 20

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
203		20	Carriage Bolt, ZMC3 black special ISO, M5 x 25
204		2	Carriage Bolt, ZMC3 black special ISO, M5 x 30
205		2	Wood Screw, R H Phill W/F washer, 3.1 x 13
206		14	Wood Screw, R H Phill ZMC3 black, 3.1 x 16
207		10	Wood Screw, R H Phill W/F washer, 3.5 x 16
208		6	Wood Screw, O H Phill chromed, 3.1 x 13
209		8	Wood Screw, O H Phill chromed, 3.1 x 20
210		22	Flange Nut, ISO serrated type, M5 (O.D. #11)
211	283-0072-23	2	Hex Nut, 3/8 - 16
212		10	Flat Washer, ZMC3 black, M5
213	280-0299-00	2	M Screw, P H Phill ISO W/F & S washer, M5 x 16

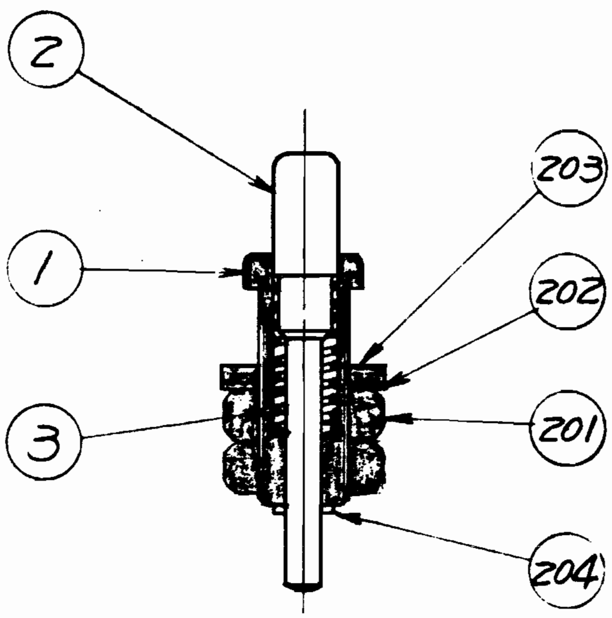
Sub Cabinet Rear Assembly

834-0496



ASSY REJECT BUTTON DRAWING NUMBER 601-0417

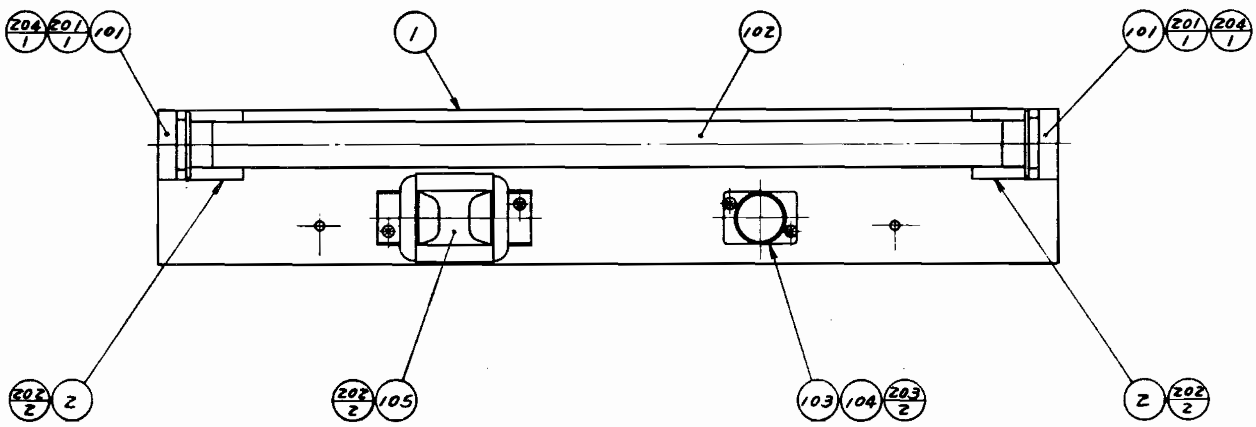
ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	240-0101	1	Button, housing
2	240-0102	2	Push Button
3	125-0032	1	Compression Spring, rejection button
201		2	Hexagon Nut, M12 (#2) P=1
202		1	Lock Washer, external, M12
203		1	Flat Washer, M12
204		1	Spring Pin, UNBRAKO, 1.5 x 8


2
1
3
203
202
201
204

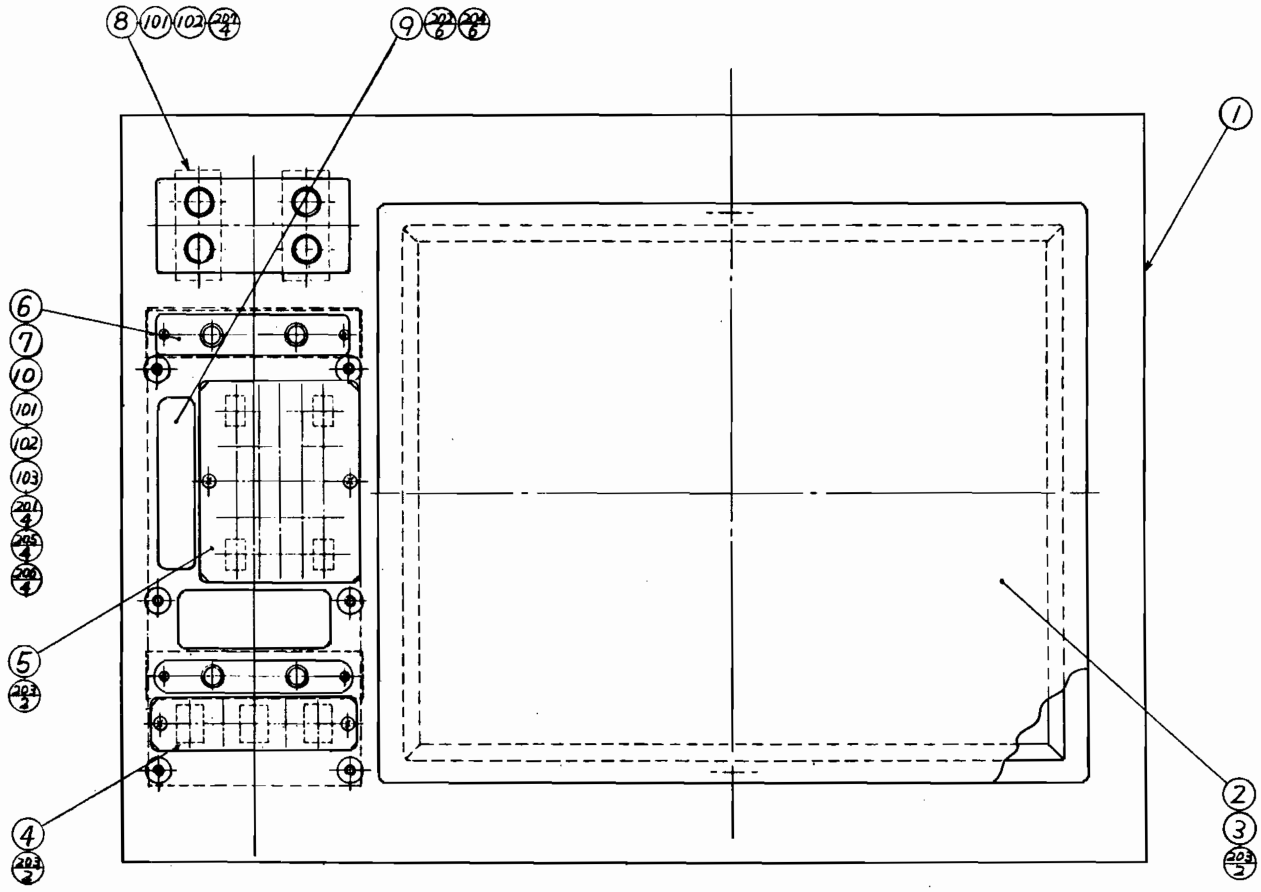
ASSY FLUORESCENT LIGHT 15W DRAWING NUMBER 834-0492

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	102-0059	1	Wooden Base
2	250-0537	2	Fluorescent Lamp, socket bracket
101	214-0009	2	Socket, fluorescent light
102	390-0031	1	Fluorescent Light, 15W
103	214-0010	1	Socket, fluorescent, starter
104	390-0033	1	Starter, fluorescent
105	182-0006	1	Ballast Coil, 100V, 15W, 50 Hz
201	285-0024-16	2	M. Screw, F.H. Phill, ISO, M4 x 16
202		6	Wood Screw, R.H. Phill., W/F washer, 3.1 x 13
203	280-0301-00	2	Wood Screw, R.H. Phill., 3.1 x 16
204		2	Square Nut, ISO, M4(H=1.6 B=8)

Upper Flourescent Lamp Assembly 834-0492

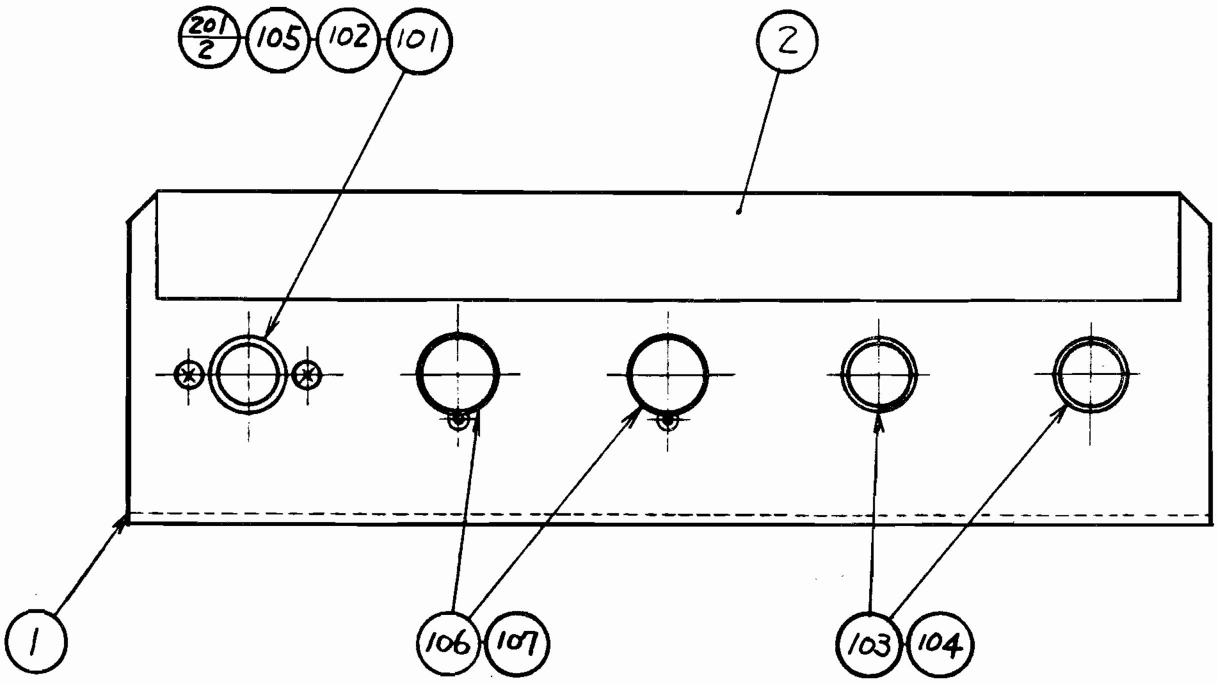


ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	601-0879	1	Score Board
2	601-0677	1	TV Mask, graysmoke 20
3	601-0678	2	TV Mask, 20
4	601-0674	1	Mask, score
5	601-0675	1	Mask, best five
6	601-0676	2	Lamp Holder Board
7	140-0064	2	Lamp Cover
8	601-0758	2	Lamp Holder Board
9	834-5129	1	Ass'y LED 7 seg board
10	280-0390	4	Spacer Tube, 10
101	390-0116	8	Lamp Wedge Base, type 14V 0.24A
102	214-0081	8	Wedge Base, socket assy
103	310-0014	2	Insulator Tubing, silicon rubber glass
201	285-0002-18	4	M Screw, PH Phill ISO, M3 x 18
202		6	M Screw, Ph Phill ISO W/F & S Washer, M4 x 16
203		6	Wood Screw, FH Phill, 3.1 x 13
204	280-0293-00	6	T-Nut ISO, M4
205	287-0072-02	4	Hex Nut, ISO, M3
206	287-0060-02	4	F Washer, M3
207		4	Wood Screw, RH Phill W/F washer, 3.5 x 13



ASSY CONTROL UNIT DRAWING NUMBER 834-0493

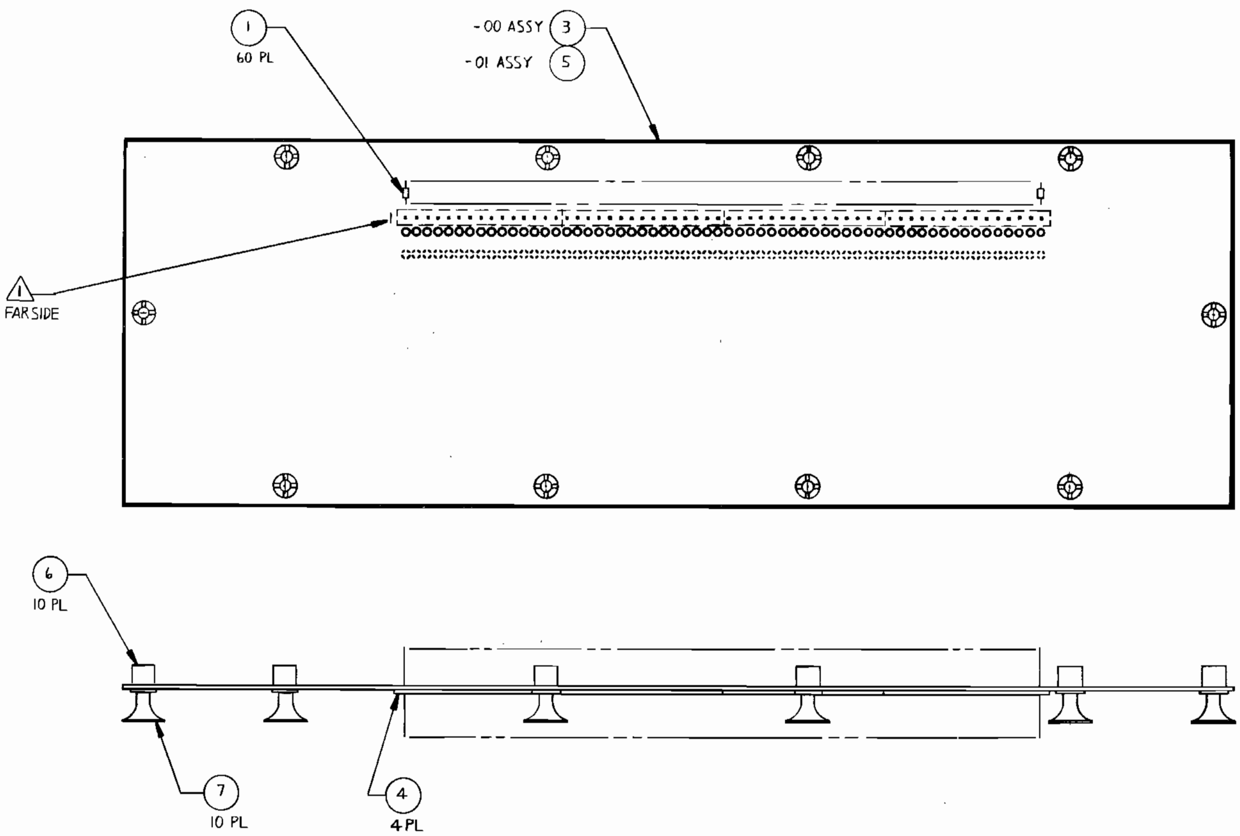
ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	105-0347	1	Control Bracket
2	421-5146	1	Sticker, control instructions
101	240-0105	1	Push Button Switch, IM W/O button
102	240-0106	1	Push Button Ivory, 8φ
103	509-0113	2	Push Button Switch, 2T
104	509-0049	2	Switch Stopper, 12φ
105	601-0444	1	C & R Combination Element, 0.1 MF & 12.0Ω
106	475-0049	2	Rheostat, 100Ω 10W
107	240-0125	2	Knob, metal
201	280-0308-00	2	M. Screw, P.H. Phill., 130, W/S washer, M3 x 6


201/2
105
102
101
2
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106
107
103
104

ASSY INTERFACE BOARD

DRAWING NUMBER 834-0422

ITEM NO.	PART NO.	QTY REQD. -00	QTY REQD. -01	DESCRIPTION
1	151-0061-00	60	60	Cap 220 pf 16V Axial
2				
3	170-0274-00	1	-	PCB-Interface
4	211-0187-00	4	4	Chassis Mount-15 Pin Feed Thru
5	170-0274-01	-	1	PCB-Interface
6	289-0005-05	10	10	Latch Grommet
7	289-0005-06	10	10	Latch Plunger

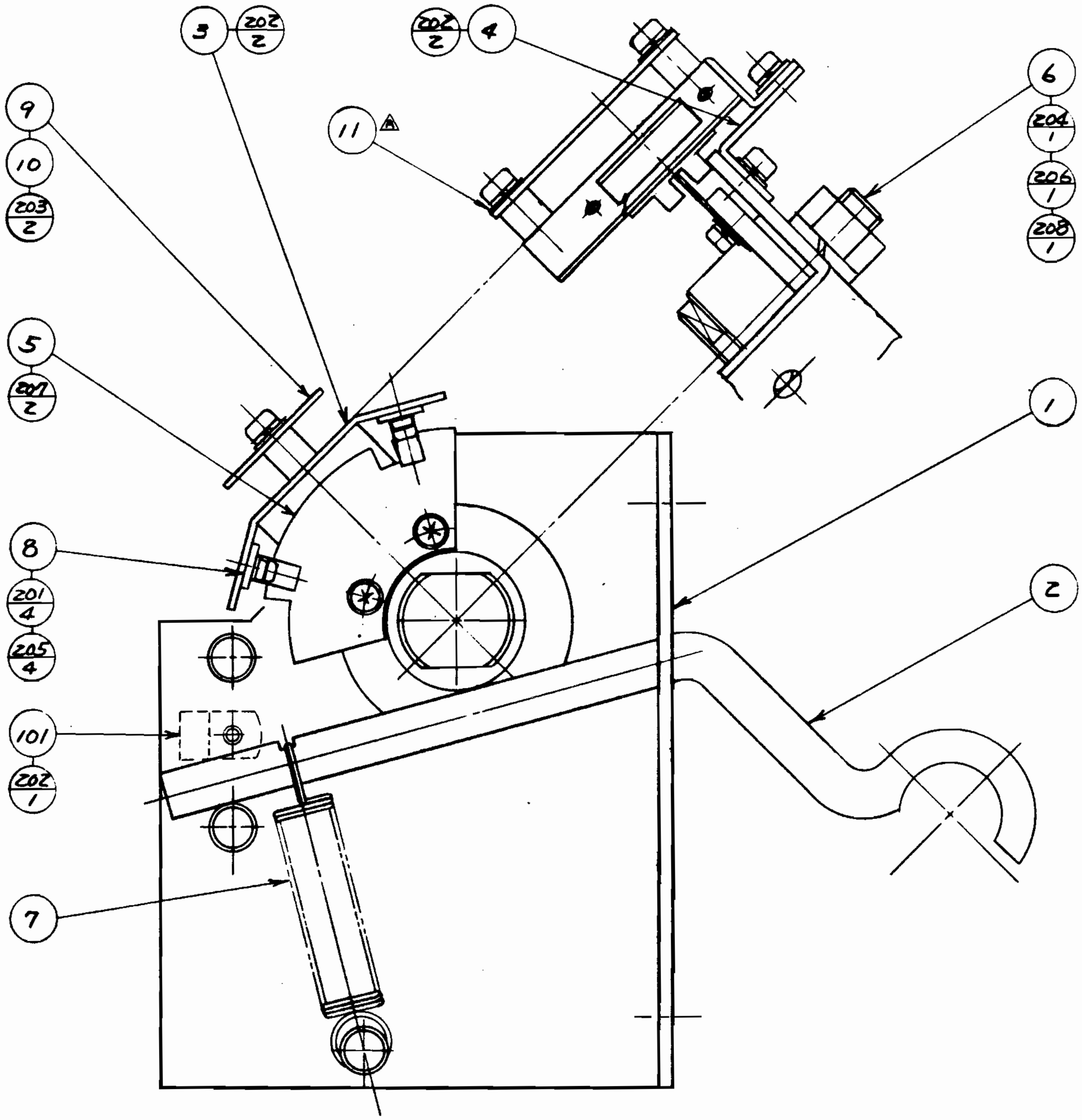

1
60 PL
-00 ASSY 3
-01 ASSY 5
1
FAR SIDE
6
10 PL
7
10 PL
4
4 PL

ASSY ACCELERATOR MECHANISM DRAWING NUMBER 834-0106

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	105-0252	1	Accelerator Bracket
2	123-0067	1	Accelerator Pedal, shaft
3	105-0251	1	Sensor Bracket
4	105-0250	1	Bracket
5	601-0695	1	Sensor Disc
6	280-0158	1	Shoulder Screw
7	125-0021	1	Extension Spring
8	601-0694	2	Coupler Unit
9	834-0104	1	Ass'y IC Board, buffer
10	280-0396	2	Spacer Tube
11		2	Fiber Washer, 4.1 - 9 x 1.5
12	834-0247	1	Assy Harness, accelerator
201	280-0308-00	4	M. Screw, P.H. Phill. ISO, W/S, washer, M3 x 6
202	280-0258-00	5	M. Screw, P.H. Phill. ISO, W/F & S washer, M4 x 8
203		2	M. Screw, P.H. Phill. ISO, W/F & S washer, M4 x 16
204	280-0261-00	1	Hex Nut, M10 (#3)
205	287-0060-02	4	Flat Washer, M3
206	280-0262-00	1	Spring Washer, M10 (#2)
207		2	M. Screw, P.H. Phill. ISO, W/S washer, M4 x 6
208		1	Flat Washer, special, 13.5-22.2 x 0.23

Accelerator Mechanism Assembly

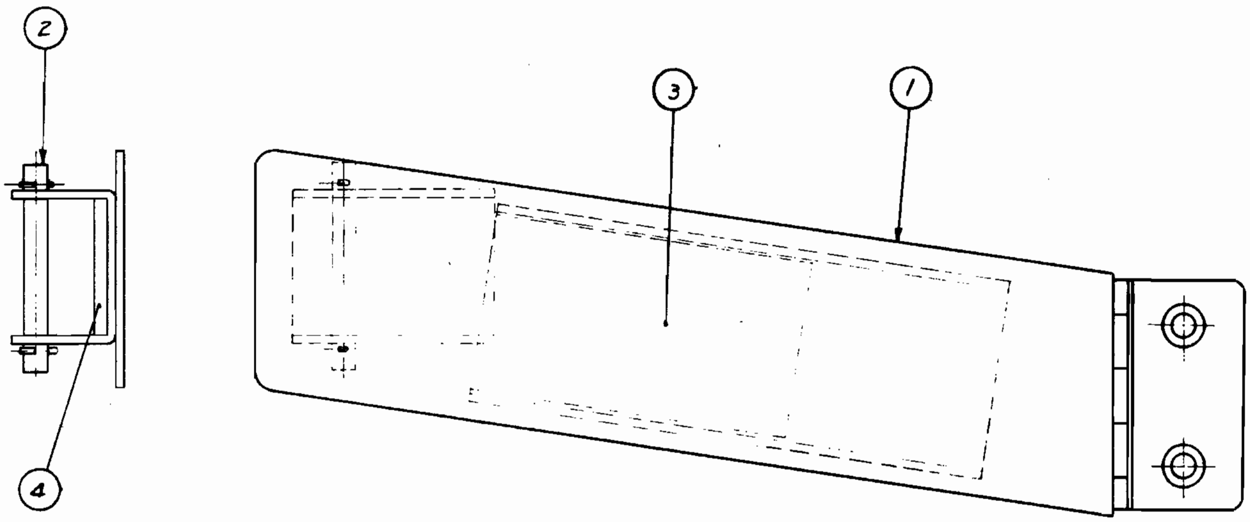
834-0106



Accelerator Pedal Assembly

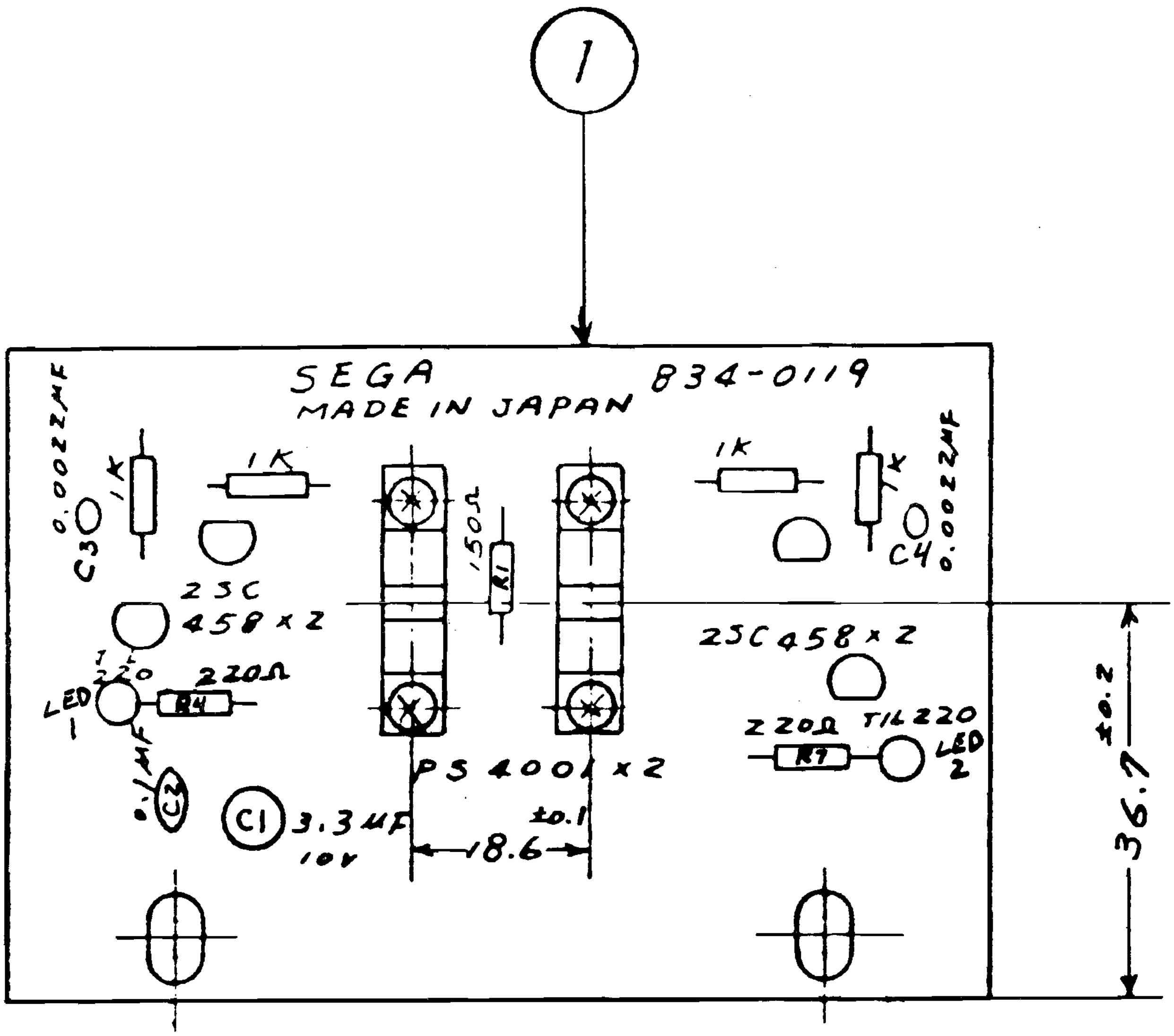
601-0556

ITEM NO.	PART NO.	QTY REQD.	DESCRIPTION
1	601-0726	1	Accelerator Pedal
2	280-0409	1	Plastic Pin
3	280-0410	1	Rubber Spacer
4	280-0411	1	Plastic Spacer



ASSY SENSOR BOARD DRAWING NUMBER 834-0119

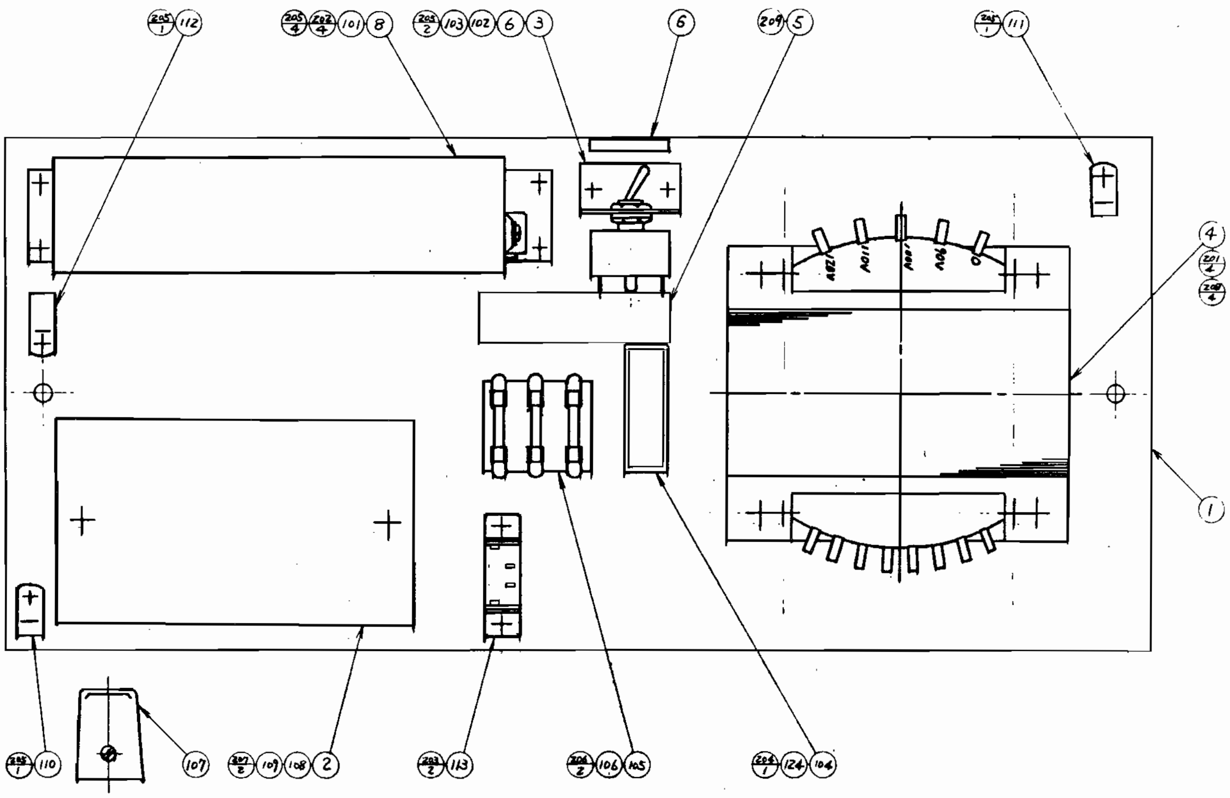
ITEM NO.	PART NO.	QTY. REQ'D	DESCRIPTION
1	171-0065	1	Printed Board
101	601-0693	2	Photo Micro Sensor (NEC PS4001)
102	390-0100	2	LED TIL220 Red (Texas)
103	482-0043	4	Transistor 2SC458,C (Hitachi)
104	151-0041	1	CAP CER 0.1MF 25V
105	150-0071	1	CAP E 3.3MF 10V U-TYP
106	151-0074	1	CAP CER 0.0022MF 25V
107	470-0151	1	Res 150 OHM ¼W 5%
108	470-0221	2	Res 220 OHM ¼W 5%
109	470-0102	4	Res 1K OHM ¼W 5%


1
SEGA
MADE IN JAPAN
834-0119
0.0022μF
C3
1K
1K
2SC
458 x 2
150Ω
R1
1K
1K
0.0022μF
C4
2SC458 x 2
LED
1
220Ω
R4
0.1μF
C2
C1
3.3μF
10V
PS 4001 x 2
±0.1
18.6
220Ω
TIL220
R7
LED
2
36.7
±0.2

ASSY POWER SUPPLY DRAWING NUMBER 834-0474

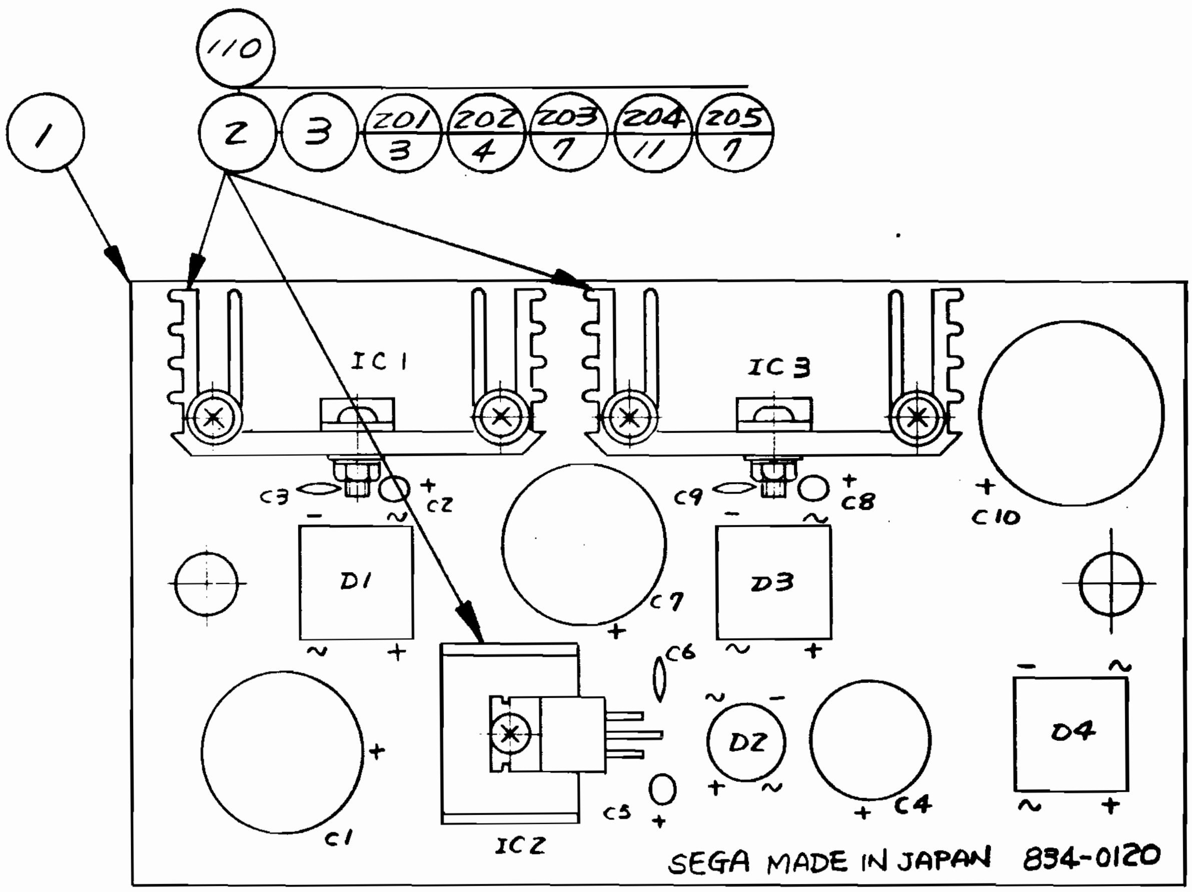
ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	102-0062	1	Base
2	834-0120	1	Assy Regulator Board
4	560-0071	1	Power Transformer, 90-240V
5	421-5135	1	Fuse Instr
7	834-0498	1	Assy Harness, power supply
8	105-0248	2	Bracket
101	601-0692	1	Switching Regulator, AC 100V, 5V, 10A
102	509-0115	1	Switch, toggle, SP-DT 15A
103	509-0049	1	Switch Stopper, 12
104	514-0045	1	Fuse Holder, w/cover 250V-10A
105	514-0050	1	Fuse Holder, 3P 125V 10A
106	514-0040	3	Fuse 4A
107	600-0097	1	AC Cord Connector Body, flat type
108	280-0297	2	One Touch Bush
109	601-0485	2	One Touch Collar
113	481-0064	1	Diode Bridge, 4B10Y
124	514-0034	1	Fuse 5A
201		4	M Screw, P H Phill ISO W/F & spring washer, M5 x 14
202	280-0267-00	4	M Screw, P H Phill ISO W/S washer, M4 x 8
203	280-0301-00	2	Wood Screw, R H Phill, 3.1 x 16
204		1	Wood Screw, R H Phill, 3.1 x 20
205	280-0304-00	9	Wood Screw, R H Phill W/F washer, 3.5 x 13
206		2	Wood Screw, R H Phill W/F washer, 3.1 x 13
207		2	Wood Screw, R H Phill, 3.5 x 25
208	280-0294-00	4	T-Nut, ISO, M5

Power Supply Assembly 834-0474



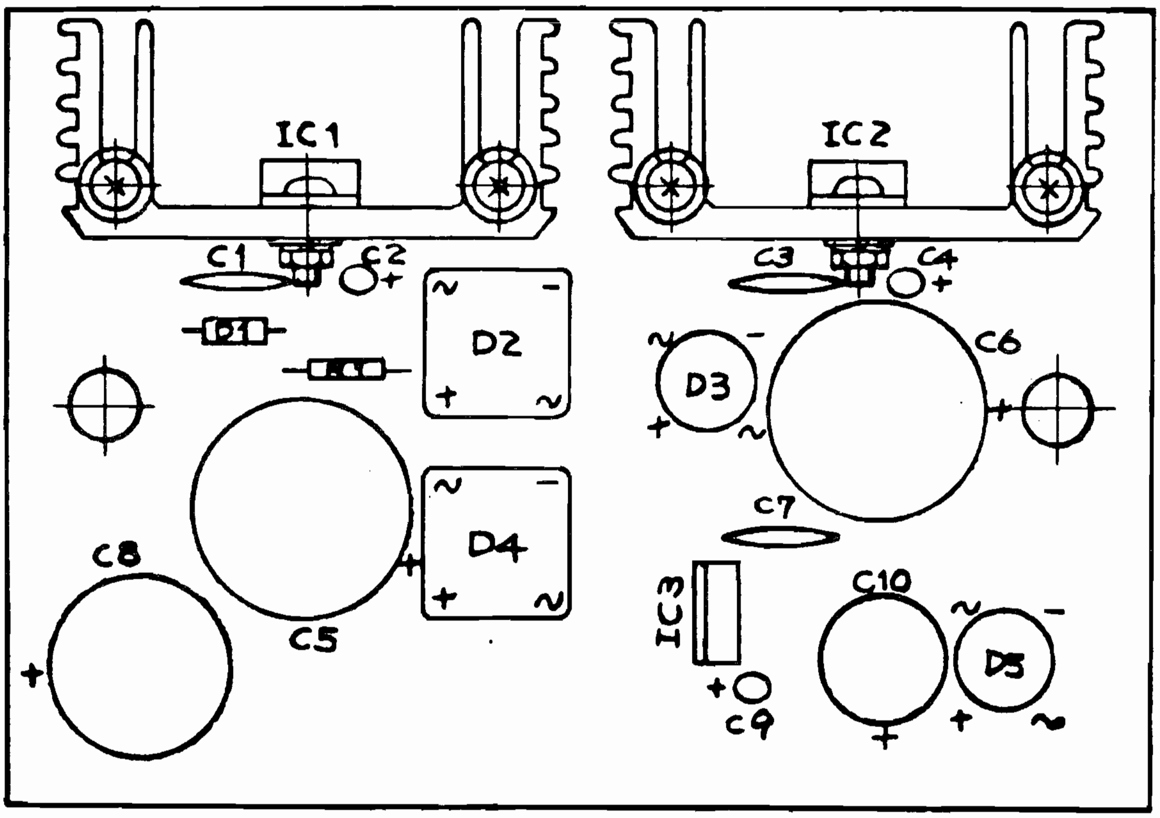
ASSY REGULATOR BOARD DRAWING NUMBER 834-0120

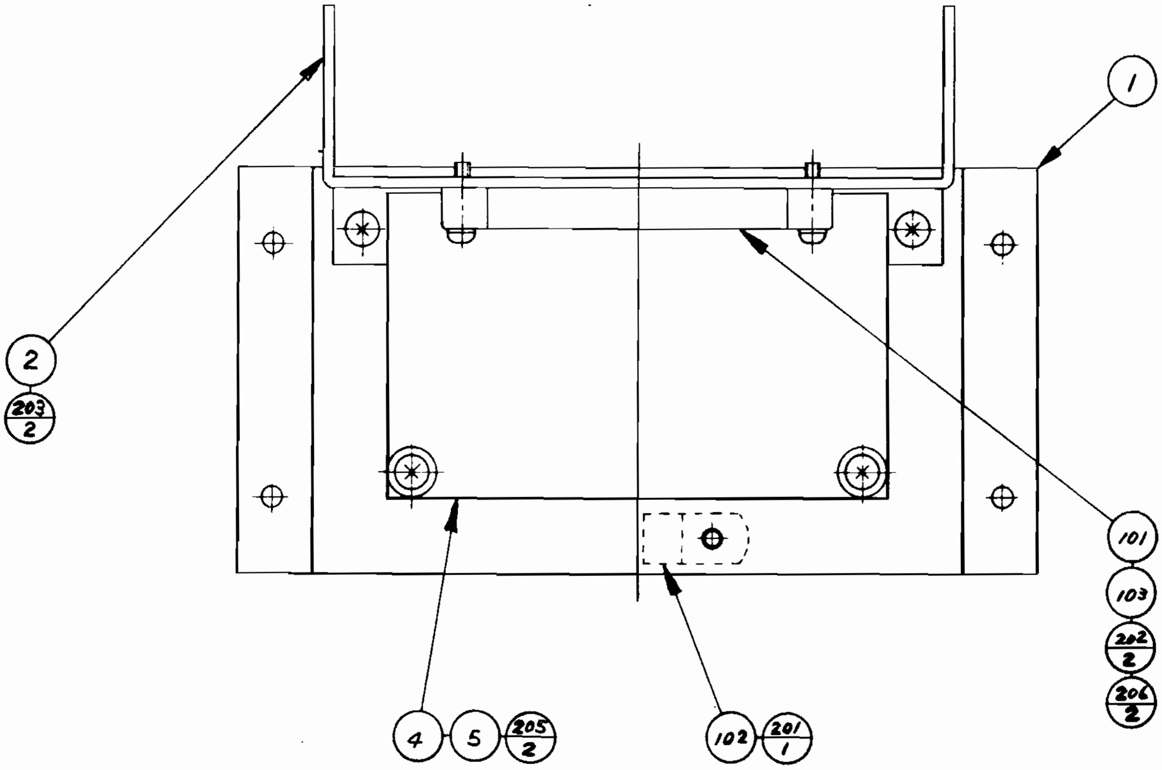
ITEM NO.	PART NO.	QTY. REQ'D	DESCRIPTION
1	171-0063	1	Printed Board
2	530-0021	2	Heat Sink
3	530-0024	1	Heat Sink
101	313-0091	1	IC UA78M12 UC
102	313-0058	2	IC UA7812 UC
103	481-0042	1	Diode Bridge W06
104	481-0065	3	Diode Bridge SZVB10
105	150-0008	1	CAP E 2200MF 25V
106	150-0189	2	CAP E 3300 MF 25V
107	150-0216	1	CAP E 4700 MF 35V
108	153-0002	3	CAP Tant 1MF 25V
109	151-0041	3	CAP Cer 0.1MF 25V
201		3	M. Screw PH Phill ISO M3 X 10
202		4	M. Screw PH Phill ISO M3 X 50
203		7	Hex. Nut, ISO M3
204		11	Flat Washer, Small Type M3
205		7	Spring Washer M3(#2)


110
1
2
3
201 3
202 4
203 7
204 11
205 7
IC1
IC3
C3
C2
C9
C8
C10
D1
D3
C7
C6
D2
C4
D4
C1
C5
IC2
SEGA MADE IN JAPAN 834-0120

REGULATOR UNIT DRAWING NUMBER 601-0612

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	312-0070	1	IC, uA 78M12UC
2	313-0014	1	IC, uA 7812UC
3	312-0042	1	IC, uA 7805UC
4	481-0042	2	Rectifier, Silicon Diode
5	481-0065	2	Rectifier, Silicon Diode
6	481-0049	1	Zener Diode
7	150-0008	1	Cap., 2200uf, 25V
8	150-0182	2	Cap., 3300uf, 25V
9	150-0206	1	Cap., 3300uf, 16V
10	153-0002	3	Cap., 1.0uf, 25V
11	151-0041	3	Cap., 0.1uf, 25V
12	470-0332	1	Res., 3.3K, ¼W
13	150-0154	1	Cap., 470uf, 25W

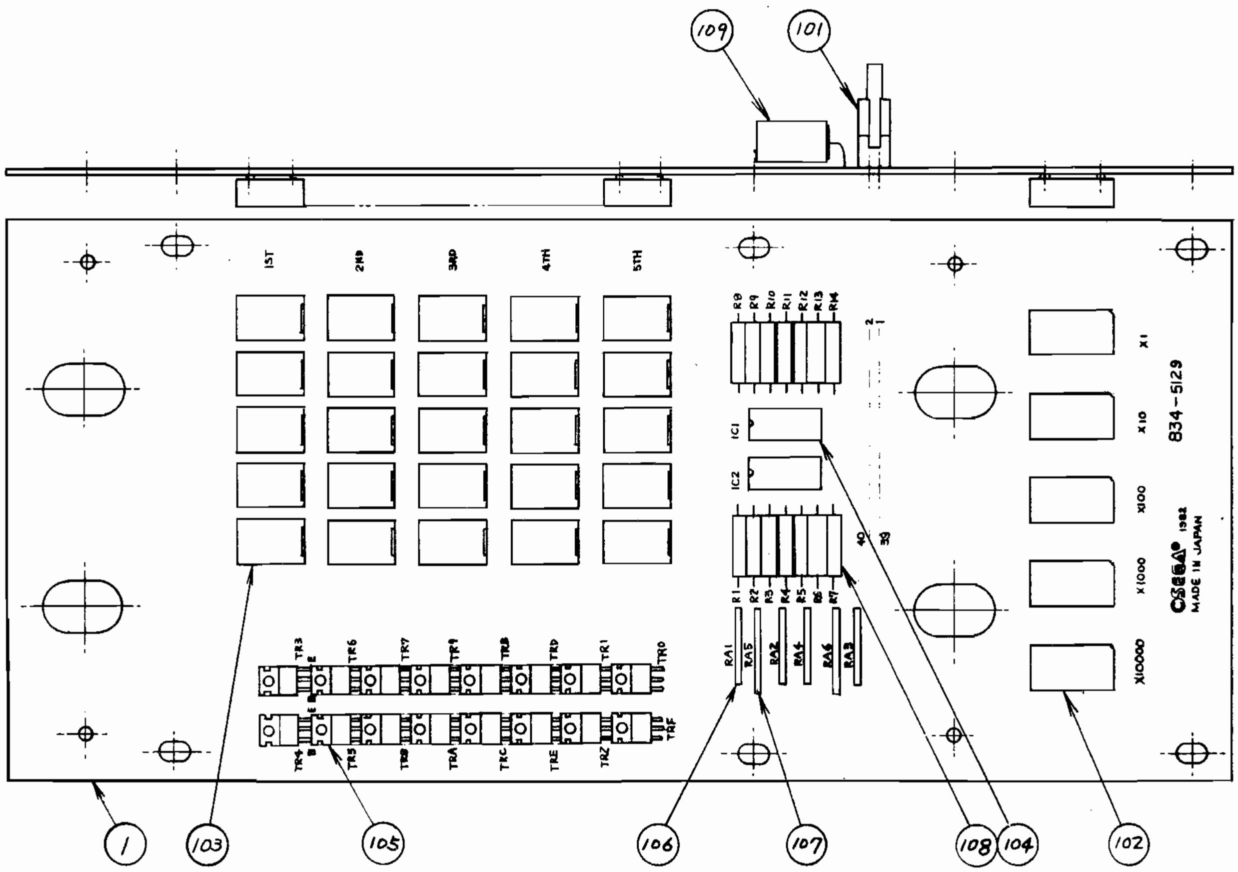

IC1
IC2
C1
C2
C3
C4
D1
D2
D3
D4
D5
C5
C6
C7
C8
C9
C10
IC3



POWER AMPLIFIER, DC3ZV, 16W

DRAWING NUMBER 110-0019

ITEM NO.	PART NO.	QTY. REQ'D	DESCRIPTION
1	140-0066	1	Chassis
2	530-0034	1	Heat Sink
3			
4	834-0121	1	Assy Power Amplifier
5	280-0391	2	Spacer Tube
101	315-0129	1	IC STK-439
201		1	M. Screw, PH Phill, ISO W/F Washer M3 X 8
202		2	M. Screw PH Phill, ISO M3 X 14
203		2	M. Screw PH Phill, ISO W/S Washer M4 X 8
204			
205		2	M. Screw PH Phill, ISO W/F Washer M4 X 14
206		2	Spring Washer M3 (#2)

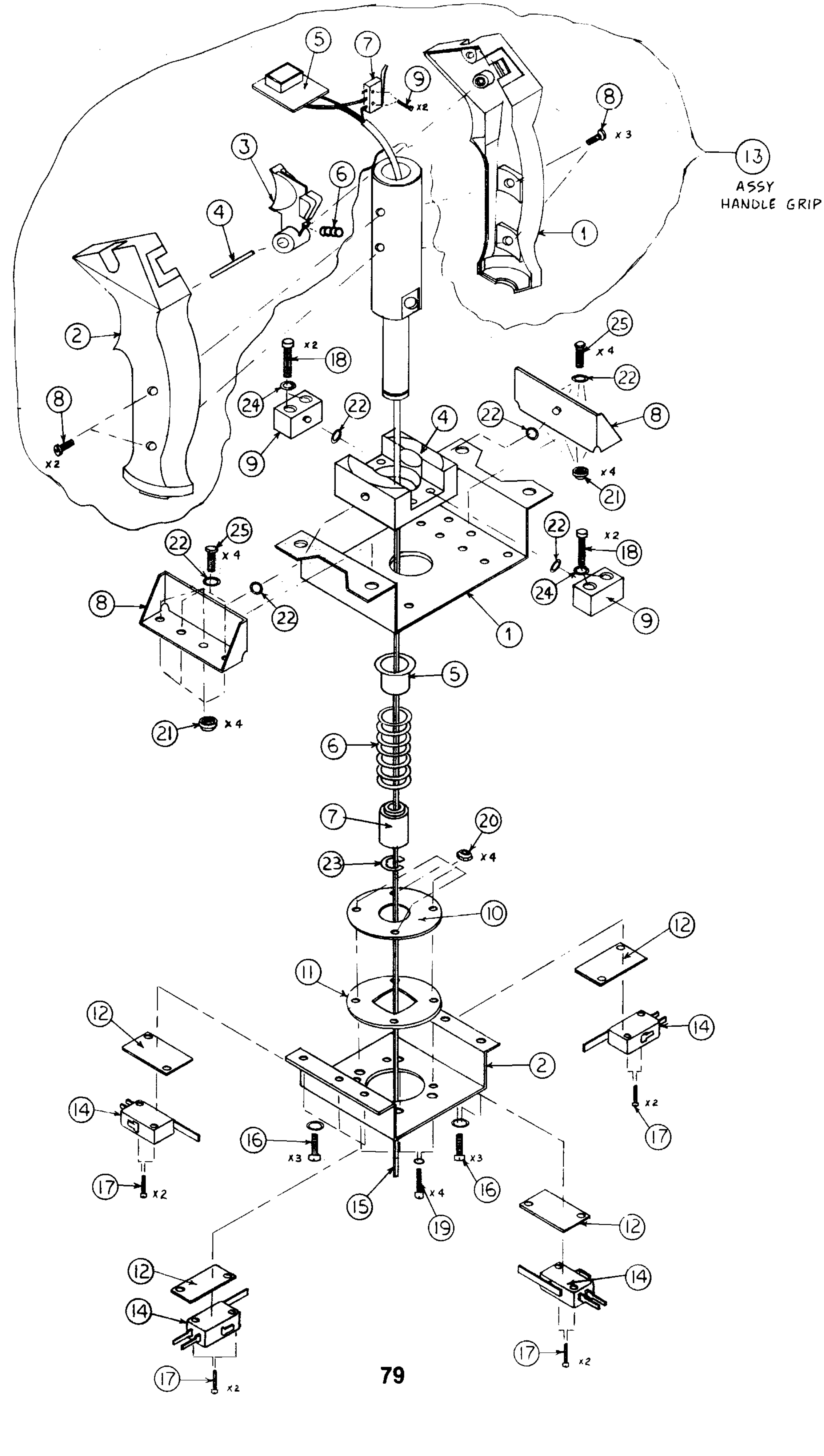


ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	171-5016	1	PC Board
	150-0151	1	Cap E, 220MF 16V T-typ
	462-0091	14	Res 33, ohm 2W metal oxide film 5%
	477-0025	2	Res Pack, 8 x 2.2K ohm 1/8W
	477-0046	4	Res Pack, 4 x 560 ohm 1/4W
	482-0113	16	Transistor, 25A473
	313-0086	2	IC TD62003
	390-0109	25	LED TLR 353 7 seg red
	390-0108	5	LED TLR 306 7 seg red
	212-5001	1	Conn M 40 pin

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	105-0344	1	Bracket A
2	105-0345	1	Bracket B
3	123-0078	1	Shaft, main
4	601-0775	1	Supporter Shaft
5	601-0776	1	Ring Shaft
6	125-0101	1	Compression Spring
7	109-0067	1	Holder Spring
8	105-0346	2	Bracket
9	601-0878	2	Internal Block
10	109-0066	1	Guide Plate Holder
11	117-0231	1	Guide Plate, 8 way
12	310-0012	4	Paper Insulator
13	834-0468	1	Assy Handle Grip
14	509-0144	4	Switch, micro type
15	834-0491	1	Assy Harness, Joystick
16		6	M Screw, P H Phill ISO W/S washer, M5 x 10
17	285-0002-14	8	M Screw, P H Phill ISO, M3 x 14
18	285-0125-20	4	Set Screw, hex socket head cap screw ISO UNBRAKO, M5 x 20
19		4	M Screw P H Phill ISO W/S washer, M4 x 14
20		4	U-Nut, ISO, M4
21		8	U-Nut, ISO, M5
22		10	Flat Washer, special, 8.3-14.3 x 0.23
23		1	E Washer, 9mm
24	280-0288-00	12	Spring Washer, M5 (#2)
25	280-0468-00	8	Hex Bolt, ISO, M5 x 14
26		4	Tamper Proof Screw, P H ZMC3 black ISO, M5 x 10

ASSY HANDLE GRIP DRAWING NUMBER 834-0468

ITEM NO.	PART NO.	QTY REQD.	DESCRIPTION
1	109-0062-00	1	Handle Grip Right
2	109-0063-00	1	Handle Grip Left
3	601-0888-00	1	Trigger
4	123-0079-00	1	Trigger Shaft
5	834-0276-00	1	Assy LED Board
6	125-0011-00	1	Compression Spring
7	509-0058-00	1	Switch Micro Type
8		5	Tamper Proof Screw PH ZMC3 ISO M5 x 10
9	285-0000-10	2	Machine Screw, PH Phillips M2 x 10

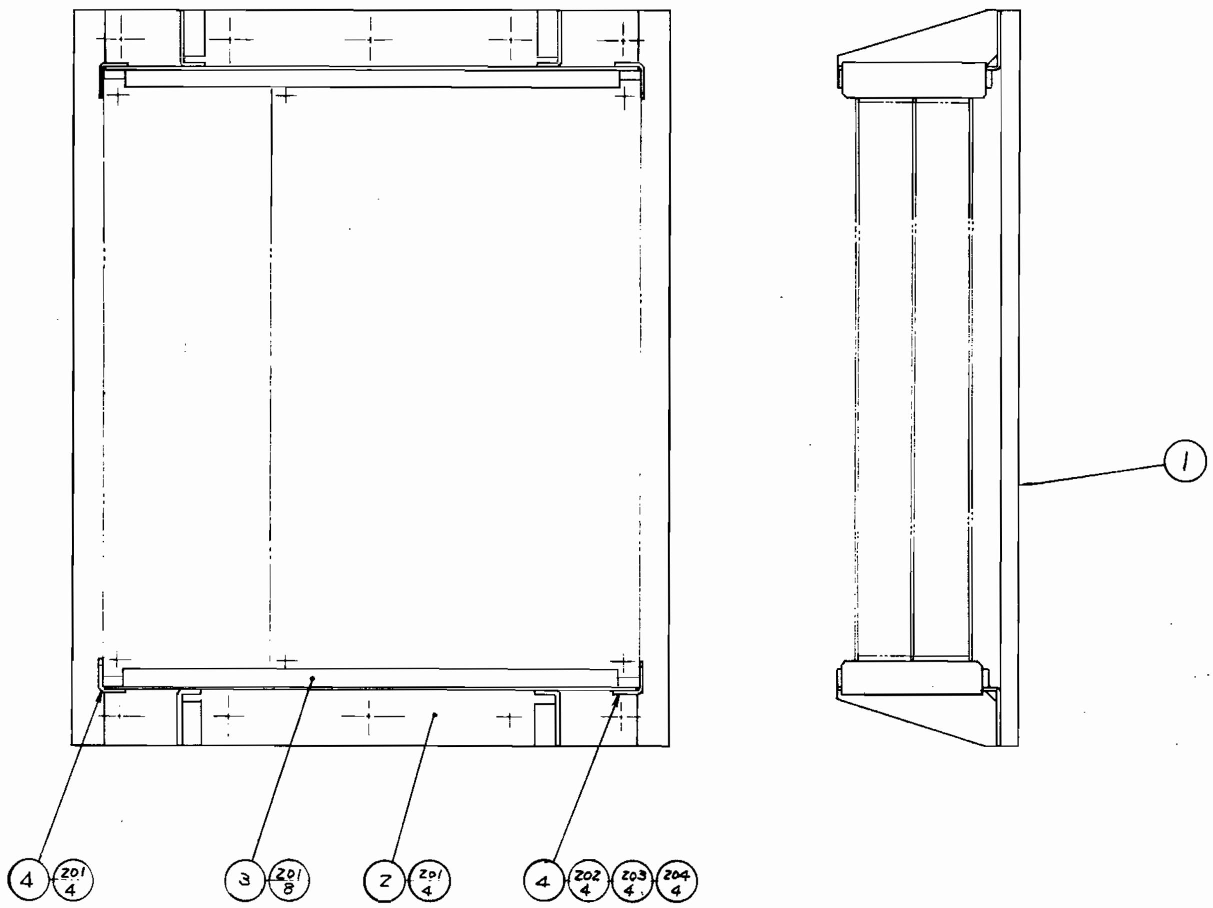

13
ASSY
HANDLE GRIP
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x2
x3
x4

ASSY IC BOARD CASE DRAWING NUMBER 834-0475

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	102-0063	1	Base
2	105-0362	2	Bracket
3	601-0887	2	Wooden Guide
4	602-0818	4	Stopper
201	280-0268-00	16	M Screw, PH Phill ISO W/F & S washer, M4 x 10
202		4	Wing Bolt, ISO, M4 x 10
203	287-0060-14	4	Flat Washer, M4
204	280-0287-00	4	Spring Washer, M4 (#2)

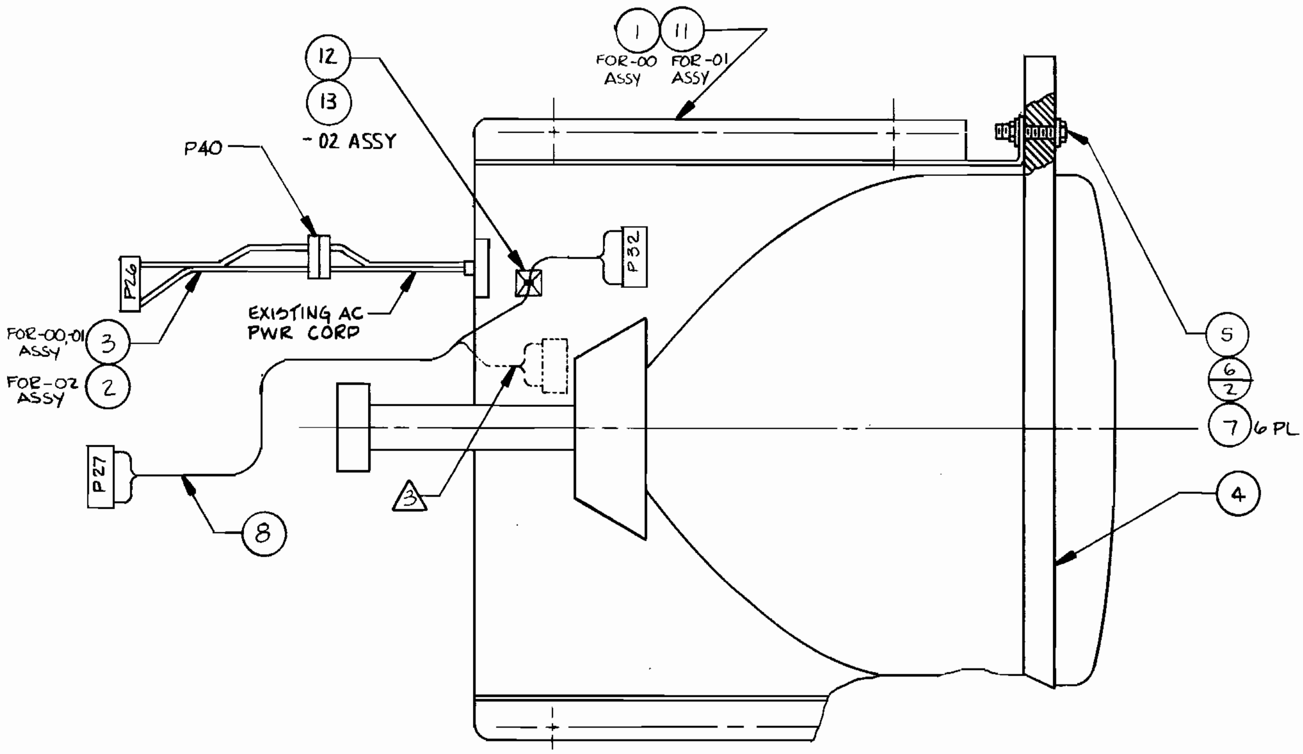
IC Board Case Assembly

834-0475



Common Assemblies

ITEM NO	PART NO.	QTY REQD. -00	-01	-02	DESCRIPTION	REF DES.
1	SEE BELOW					
2	800-0369-01	-	-	1	Assy Harness AC "Z"	
3	800-0369-00	1	1	-	Assy Harness AC "Z"	
4	252-0175-00	1	1	1	Monitor Mounting Board	
5	282-0017-24	6	6	6	Hex HD Bolt 1/4-20 x 1.500 lg	
6	283-0060-34	12	12	12	Washer, 1/4 Flat	
7	283-0070-05	6	6	6	Nut-1/4-20 Hex Self-Locking	
8	800-0361-00	1	1	1	Assy Harn Video Intf	
9	470-0221-00	3	3	3	Res 220 Ohm 1/4W	See Sh 2
10	470-0302-00	3	3	3	Res 3K 1/4W	See Sh 2
11	200-0019-00	-	1	-	Crt Cl 19 In Vt Mt	
	200-0022-00				W/G Clr 19 In Vt Mt	
1	200-0019-00	1	-	1	Crt Cl 19 In Vt Mt	
	200-0091-00				Mon 19 In Vert Mt W/G	
12	280-0005-00	-	-	1	Cable Tie	
13	280-0327-00	-	-	1	Base Tie Wrap	


1
11
FOR-00 ASSY
FOR-01 ASSY
12
13
- 02 ASSY
P40
P32
P26
EXISTING AC PWR CORD
FOR-00,01 ASSY
3
FOR-02 ASSY
2
P27
8
3
5
6
2
7
6 PL
4

OUTSIDE OF THE PCB ASSY

Part No.	Description	Ref. Des.
200-0067	Picture tube 19"	
200-0068	Deflection yoke	
113-0009	PC magnet	
560-0096	Flyback trans.	
	HVR	
	UNF resistor 220 Ohm, 25W K	R05
	C capacitor 150 pf, AC1.5KV	C04
482-0198	Si. transistor, 2SD870	X01
482-0143	Si. transistor, 2SC1106A	X02
	Screw #8 3/8	
	Screw 1/4 x 3/4 pix tub mtg (4)	
	Pyramidal lock washer (4)	
	Nut retainer, pix tube mtg (4)	
	Clip - PCB support	
	Standoff	
	Wire terminal (gnd strap)	
	Terminal lug (gnd)	
	Groundstrap assy	
	Grounding spring	
	Wire hook (gnd strap)	
	Purity shield holddown clamp	
	Support brkt RH	
	Support brkt LH	
	Chassis base	
	Yoke wedge (3)	

PURITY SHIELD ASSY

Part No.	Description	Ref. Des.
180-0022	Degaussing coil	D911, D912
481-0225	Rectifier 1 amp 600 V (2)	
	Pin Terminal (2)	

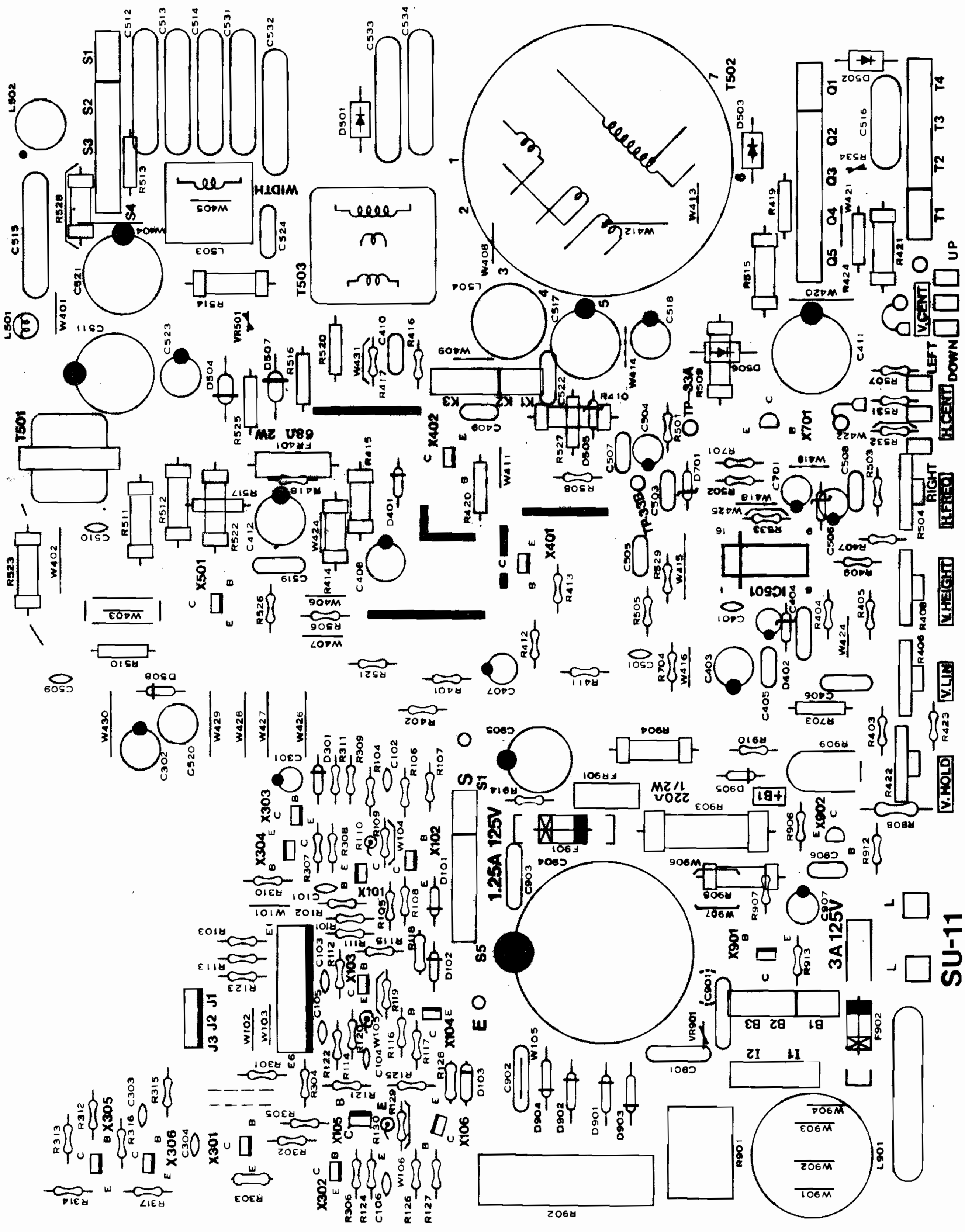
Part No.	Description	Ref. Des.
	Pin terminal housing	
	Purity shield (2 pcs)	
	Purity shield (2 pcs)	
	Capacitor 100 nf 10% 400V	C911
	Resistor, wirewound 33 Ohm, 4W	R921
	Fire retardant term strip 4 lug	
	CRT SOCKET PCB ASSY	
	V R 200	R105
	V R 200	R106
	V R 5K	R113
	V R 5K	R114
	V R 5K	R115
	OM R 10K Ohm 2W J	R116
	OM R 10K Ohm 2W J	R117
	OM R 10K Ohm 2W J	R118
	Comp R 3.3K Ohm 1/2 K	R119
	Comp R 3.3K Ohm 1/2 K	R120
	Comp R 3.3K Ohm 1/2 K	R121
Capacitors		
	E Cap 10 uf 250V A	C107
	C Cap 1000 pf DC1400V P	C108
Coils		
180-0023	Peaking coil	L101
Semiconductors		
482-0290	Si transistor, 2SC1514VC	X101
482-0290	Si transistor, 2SC1514VC	X102
482-0290	Si transistor, 2SC1514VC	X103
Miscellaneous		
213-0022	CRT socket	

Part No.	Description	Ref. Des
	MAIN PCB ASSY	
Resistors		
	V R 200 Ohm	R406
	V R 200 Ohm	R408
	CMF R 6.8 Ohm 1W J	R410
	OM R 3.3K Ohm 1W J	R414
	OM R 2.7K Ohm 1W J	R415
	OM R 12K Ohm 2W J	R421
	V R 10K Ohm	R422
	F R 68 Ohm 2W K	FR401
	CMF R 11.8K Ohm 1/4W + 1%	R503
	V R 5K Ohm	R504
	OM R 10K Ohm 2W J	R509
	OM R 8.2K Ohm 2W J	R512
	OM R 820 Ohm 2W J	R514
	CMF R 8.2 Ohm 1W J	R515
	CMF R 4.7 Ohm 1W J	R522
	OM R 68 Ohm 2W J	R523
	OM R 390 Ohm 1W J	R528
	ZN R 470 Ohm	R534
	ZN R	VR501
	CMF R 39 Ohm 1/2W + 1%	R703
	CMF R 7.68K Ohm 1/4 + 1%	R704
	Posistor	R901
	UNF R 2 Ohm 7W K	R902
	CMF R 4.7 Ohm 3W J	R903
	OM R 10K Ohm 2W J	R904
	OM R 18K Ohm 1W J	R905
	CMF R 47 Ohm 1/2W + 1%	Q908
	V R 2K Ohm	R909
	CMF R 2.74K Ohm 1/4 + 1%	R910
	F R 220 Ohm 1/2W K	FR901

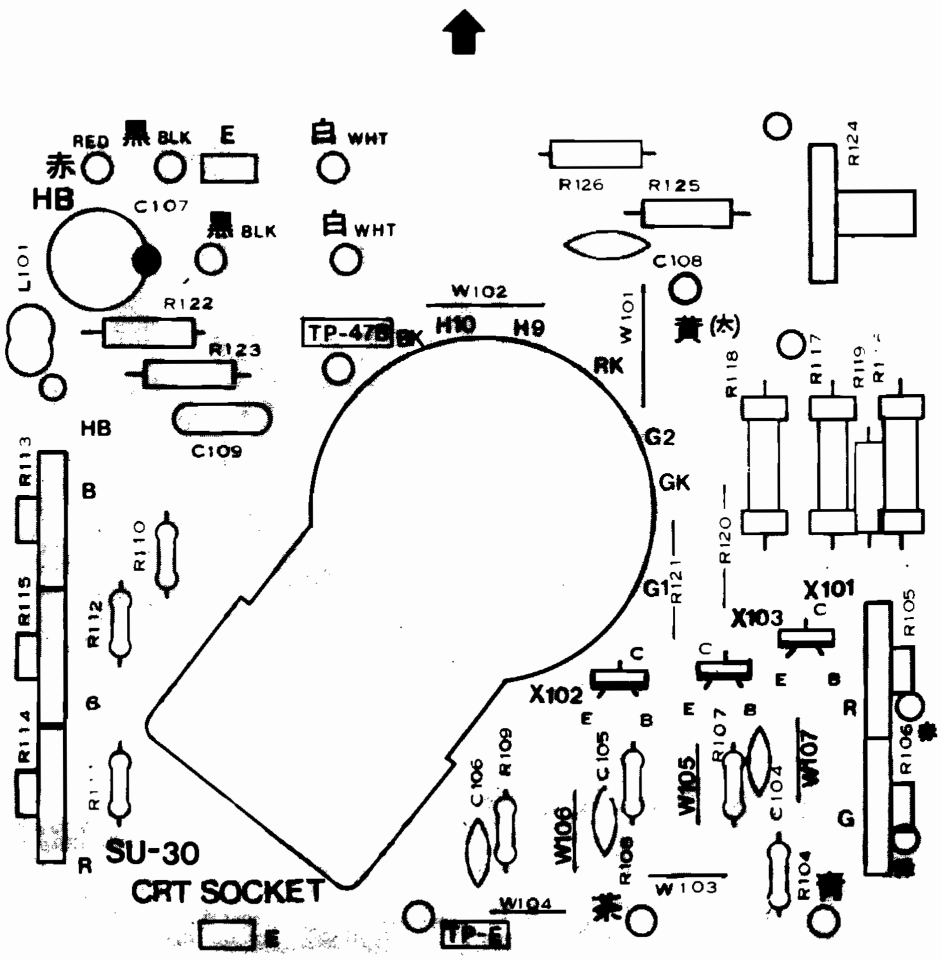
Part No.	Description	Ref. Des
Capacitors		
	BPE Cap 3.3 uf 50V A	C301
	Tan cap 2.2 uf 16V K	C402
	E cap 4.7 uf 6.3V A	C407
	E cap 100 uf 160V A	C411
	E cap 3.3 uf 160V A	C412
	PP cap 5600 uf 50V J	C508
	PP cap 2000 pf DC1500V J	C512
	PP cap 2000 pf DC1500V J	C513
	PP cap 2000 pf DC1500V J	C514
	PP cap 0.53 uf DC1200V J	C515
	BPE cap 3.3 uf 50V A	C520
	E cap 1 uf 160V A	C523
	M cap 0.1 uf 200V K	C524
	PP cap 2000 pf DC1500V J	C531
	PP cap 1500 pf DC1500V J	C532
	E cap	C904
	E cap 10 uf 250V A	C905
Coils		
180-0024	Linarity coil	L502
181-0031	Width coil	L503
180-0025	Heater choke	L504
Transformers		
560-0061	Hor drive transf	T501
560-0097	Side pin transf	T503
Semiconductors		
316-0807	IC HA11244	IC501
482-0177	Si transistor, 2SC1685(R)	X101
482-0111	Si transistor, 2SA673(C)	X102
482-0177	Si transistor, 2SC1685(R)	X103
482-0111	Si transistor, 2SA673(C)	X104
482-0177	Si transistor, 2SC1685(R)	X105

Part No.	Description	Ref. Des
482-0111	Si transistor, 2SCA673(C)	X106
482-0177	Si transistor, 2SC1685(R)	X301
482-0177	Si transistor, 2SC1685(R)	X302
482-0111	Si transistor, 2SA673(C)	X303
482-0177	Si transistor, 2SC1685(R)	X304
482-0177	Si transistor, 2SC1685(R)	X305
482-0196	Si transistor, 2SD478	X401
482-0196	Si transistor, 2SD478	X402
482-0291	Si transistor, 2SC2610BK	X501
482-0257	Si transistor, 2SC2688 (KLM)	X901
482-0258	Si transistor, 2SC1890A (EF)	X902
481-0226	Si diode, W06A	D101
481-0226	Si diode, W06A	D102
481-0226	Si diode, W06A	D103
481-0149	Si diode, 1SZ473H	D301
481-0149	Si diode, 1SZ473H	D401
481-0227	Zener diode, RD10F(C)	D402
481-0171	Si diode, HF-1	D503
481-0228	Si diode, V09E	D504
481-0229	Zener diode, RD11E(B)	D505
581-0226	Si diode, W06A	D506
481-0230	Si diode, 1SS81	D507
481-0149	Si diode, 1SZ473H	D508
481-0231	Zener diode, RD20EV2	D701
481-0160	Si diode, 1S1887A	D901
481-0160	Si diode, 1S1887A	D902
481-0160	Si diode, 1S1887A	D903
481-0160	Si diode, 1S1887A	D904
481-0198	Zener diode, RD6.8EV3	D905
Miscellaneous		
	Fuse 1.25A	F901
	US fuse 3A	F902

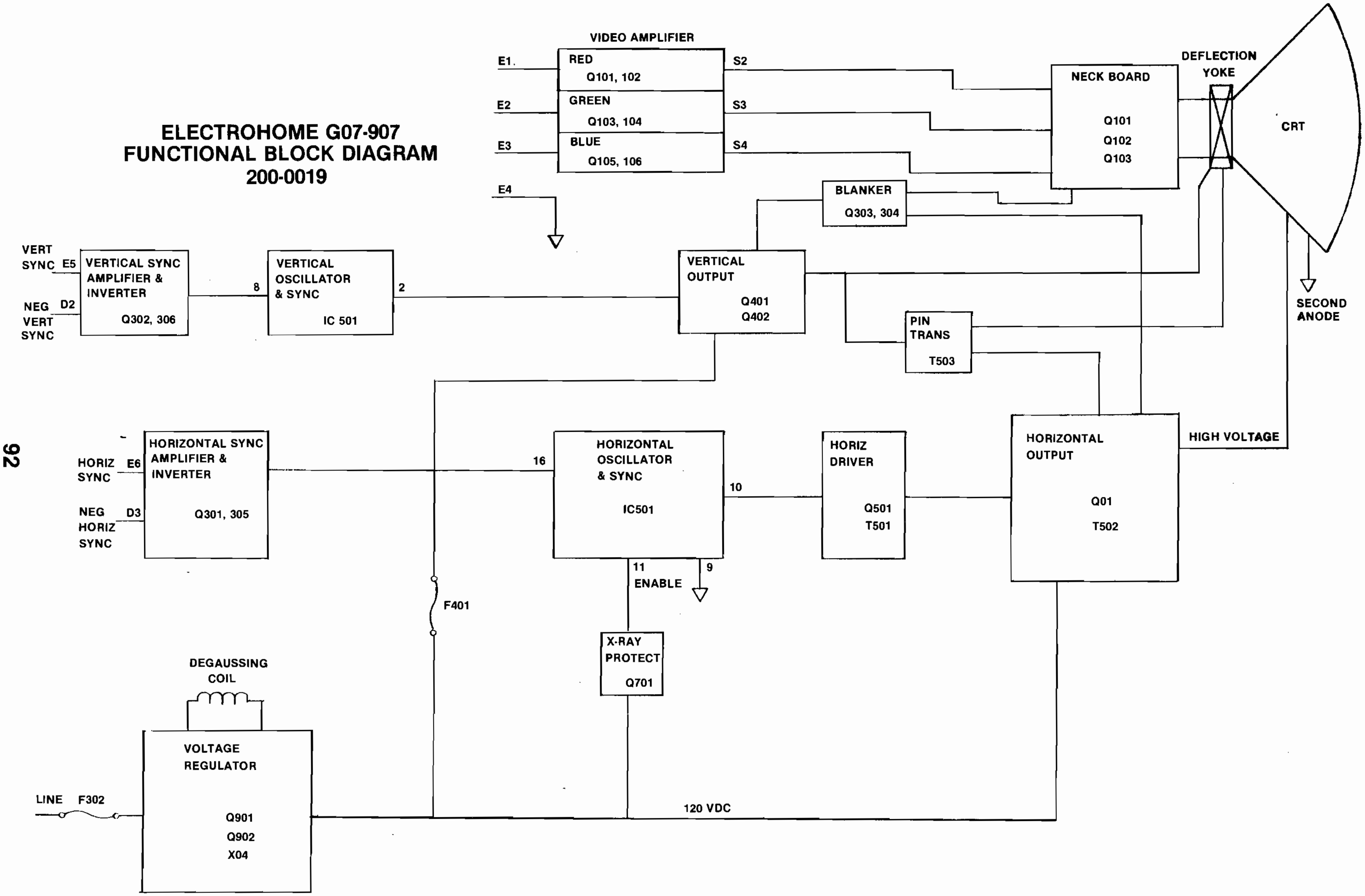
MAIN P.C.B. COMPONENT LAYOUT



C.R.T. P.C.B. COMPONENT LAYOUT



ELECTROHOME G07-907 FUNCTIONAL BLOCK DIAGRAM 200-0019



Part No.	Description	Ref. Des
Resistors	33k Ohm, ±10%, 1/2W carbon	R603
	470 Ohm, ±10%, 5W WW	R606
	2.7k Ohm, ±10%, 5W WW	R607
	1.2k Ohm, ±10%, 1W MO	R608
	22 Ohm, ±5%, 1/8W carbon	R610
	1k Ohm, ±5%, 1/2W carbon	R611
	470 Ohm, ±10%, 1/2W carbon	R612
	1.2k Ohm, ±5%, 1W MO	R613
	680k Ohm, ±5%, 1/2W comp	R614
	270k Ohm, ±5%, 1/2W comp	R615
	2.7 Ohm, ±5%, 1/8W carbon	R616
	68k Ohm, ±5%, 1/8W carbon	R617
	1k Ohm, ±5%, 1/2W carbon	R624
	2.2 Ohm, ±10%, 5W MO	R631
	120 Ohm, ±5%, 5W carbon	R632
	2.2 Ohm, ±5%, 1/8W carbon	R634
	6.8 Ohm, ±5%, 1/2W carbon	R635
	33k Ohm, ±5%, 1/8W carbon	R641
	15k Ohm, ±5%, 1/8W carbon	R642
	15 Ohm, ±10%, 2W carbon	R647
	1.8k Ohm, ±10%, 1/2W carbon	R649
	270k Ohm, ±10%, 1/2W carbon	R650
	240 Ohm, ±10%, 2W carbon	R651
	6/8k Ohm, ±10%, 1/2W carbon	
Semiconductors		
482-0262	Transistor, 2SC1893	TR601
481-0214	Rectifier, (SI) RM-2AV 600V	X601
481-0214	Rectifier, (SI) RM-2AV 600V	X602
481-0214	Rectifier, (SI) RM-2AV 600V	X603
481-0214	Rectifier, (SI) RM-2AV 600V	X604
481-0215	Diode (HS) SB-2CGL 1200V min	X605
481-0149	Diode (SI) IS2473-772	X606

Part No.	Description	Ref. Des
481-0216	Diode (HS) RC-2V 0.8 US	X607
481-0217	Diode (HS) RU-2V	X608
481-0217	Diode (HS) RU-2V	X609
481-0218	Rectifier, power (SI) 500V PIV	X610
481-0218	Rectifier, power (SI) 500V PIV	X611
481-0218	Rectifier, power (SI) 500V PIV	X612
Transformers & Coils		
180-0020	Coil, line filter R-3	L601
180-0014	Coil, filter, 10uh	L602
560-0094	Transformer, hor drive	T602
560-0095	Transformer, side PC	T603
180-0015	Width coil	L702
Capacitors		
	0.1 uf, 125V, ±20% MM	C601
	2200 pf, Z5F, ±10% ceramic	C602
	2200 pf, 125V ceramic	C603
	2200 pf, Z5F, ±10% ceramic	C604
	330 uf, 200V electrolytic	C605
	47 uf, 160V electrolytic	C608
	.0033 uf, 500V ±10% ceramic	C609
	.01 uf, 500V, ±10% ceramic	C610
	100 pf, 3 KV, ±10% ceramic	C611
	.022 uf, 200v, ±10% PP	C612
	220 uf, 25V electrolytic	C613
	33 uf, 25V electrolytic	C614
	0.39 uf, 200V, ±10% PP	C615
	47 pf, 500V ceramic	C616
	1 uf, 50v electrolytic	C617
	1 uf, 50V electrolytic	C619
	0.1 uf, 100V, ±10% mylar	C620
	0.1 uf, 1.5 KV, ±20% paper	C621
	1000 uf, 35V electrolytic	C622

Part No.	Description	Ref. Des
Capacitors (cont)	470 uf, 25V electrolytic	C623
	100 uf, 25V electrolytic	C624
	10 uf, 160V electrolytic	C625
	100 pf, 500V, ±10% ceramic	C626
	39 pf, 500V, ±10% ceramic	C627
	2200 pf, 500V, ±10% ceramic	C628
	6900 pf, 1.5 KV, ±5% PP	C629
	2.2 uf, 50V electrolyte	C633
	3 pf, 2 kV, ±0.5 pf ceramic	C637
	.056 uf, 10% mylar	C638
Miscellaneous		
	Fuse (UL/CSA) 3A-125	F601
	Socket, 6 pin	J607
	Plug, 3 pin (GT)	P602
	Plug, 4 pin (NM)	P604
	Plug, 6 pin (GT)	P607
	Plug, 3 pin (NM)	P608
	Plug, 2 pin (NM)	P611
	Thermistor	TH601
	Plug, 6 pin	P201
	Plug, 6 pin	P202

VERT/HOR BOARD

Part No.	Description	Ref. Des
Resistors		
	820 Ohm, ±5%, 1/8W carbon	R301
	12k Ohm, ±5%, 1/8W carbon	R302
	15k Ohm, ±5%, 1/8W carbon	R303
	10k Ohm, ±5%, 1/8W carbon	R304
	330k Ohm, ±5%, 1/8W carbon	R305
	1k Ohm, ±5%, 1/8W carbon	R306
	1.5k Ohm, ±5%, 1/8W carbon	R307
	2.2k Ohm, ±5%, 1/8 carbon	R309

Part No.	Description	Ref. Des
Resistors (cont)	470k Ohm, ±5%, 1/8W	R310
	56k Ohm, ±5%, 1/8W carbon	R311
	100k Ohm, ±5%, 1/8W carbon	R312
	10k Ohm, ±5%, 1/8W carbon	R313
	47k Ohm, ±5%, 1/8W carbon	R314
	820 Ohm, ±5%, 1/8W carbon	R315
	120 Ohm, ±5%, 1/2W carbon	R316
	2.2 Ohm, ±5%, 1/2W carbon	R317
	33k Ohm, ±5%, 1/4W carbon	R318
	10 Ohm, ±5%, 1/8W carbon	R319
	15k Ohm, ±5%, 1/8W carbon	R320
	560 Ohm, ±5%, 1/2W carbon	R321
	22 Ohm, ±5%, 2W MO	R322
	1.5 Ohm, ±5%, 1/8W carbon	R323
	27k Ohm, ±5%, 1/8W carbon	R234
	47 Ohm, ±5%, 1/8W carbon	R325
	820 Ohm, ±5%, 1/8W carbon	R328
	10k Ohm, ±5%, 1/8W carbon	R330
	220k Ohm, ±5%, 1/8W carbon	R331
	2.2k Ohm, ±5%, 1/8W carbon	R351
	15k Ohm, ±5%, 1/8W carbon	R352
	18k Ohm, ±5%, 1/8W carbon	R353
	3.9k Ohm, ±5%, 1/8W carbon	R354
	12k Ohm, ±5%, 1/8W carbon	R355
	470 Ohm, ±5%, 1/8W carbon	R356
	2.2k Ohm, ±5%, 1/8W carbon	R357
	1.2k Ohm, ±5%, 1/8W carbon	R358
	68k Ohm, ±5%, 1/8W carbon	R359
	27 Ohm, ±5%, 1/4W carbon	R360
	1.2k Ohm, ±5%, 1/8W carbon	R361
	1.2k Ohm, ±5%, 1/8W carbon	R363
	47k Ohm, ±5%, 1W MO	R364

Part No.	Description	Ref. Des
Resistors (cont)		
	56k Ohm, ±5%, 1/2W carbon	R365
	3.3k Ohm, ±5%, 1/8W carbon	R366
	2.2k Ohm, ±5%, 1/2W carbon	R367
	3.9k Ohm, ±5%, 1/8W carbon	R368
	3.3k Ohm, ±5%, 1/4W carbon	R369
	1k OHm, ±5%, 1/4W carbon	R370
	2.7k Ohm, ±5% 1/4W carbon	R371
	2.2k Ohm, ±5%, 1/4W carbon	R383
	8.2k Ohm, ±5%, 1/4W carbon	R384
	Varistor, 250k Ohm, vert hold	VR301
	Varistor, 20k Ohm, vert size	VR302
	Varistor, 50k Ohm, hor hold	VR351
Capacitors		
	0.15 uf, 50V ±10% mylar	C301
	0.222 uf, 50V, ±10% mylar	C302
	0.1 uf, 50V, ±10% mylar	C304
	2.2 uf, 50V electrolytic	C306
	0.15 uf, 50V, ±10% mylar	C307
	0.1 uf, 50V, ±10% myar	C309
	22 uf, 16V electrolytic	C310
	1000 uf, 35V electrolytic	C311
	0.0082 uf, 50V, ±10% ceramic	C312
	47 uf, 50V electrolytic	C313
	10 uf, 25V electrolytic	C315
	3300 uf, 50V, ±10% mylar	C316
	100 pf 50V, ±10% ceramic	C317
	1500 pf, 50V, ±10% ceramic	C351
	1000 pf, 50V, ±10% ceramic	C352
	0.022 uf, 50V, ±10% mylar	C353
	0.1 uf, 50V, ±10% mylar	C355
	4.7 uf, 25V electroytic	C356

Part No.	Description	Ref. Des
Capacitors (cont)	0.015 uf, 200V, ±10% PP	C357
	0.018 uf, 200V, ±10% PP	C358
	4.7 uf, 160V electrolytic	C359
	0.01 uf, 50V, ±10% ceramic	C360
	0.015 uf, 50V, ±10% mylar	C361
	10 uf, 50V electrolytic	C362
	0.01 uf, 640V, ±10% PP	C363
	0.01 uf, 50V, ±10% ceramic	C364
Semiconductors		
482-0282	Transistor, 2SA826Q	TR301
482-0261	Transistor, 2SC1740Q	TR302
482-0283	Transistor, 2SA1740Q	TR303
482-0261	Transistor, 2SC1740Q	TR304
452-0284	Transistor, 2SA490YLBGLI	TR305
482-0285	Transistor, 2SC1625YLBGLI	TR306
482-0261	Transistor, 2SC1740R	TR307
482-0261	Transistor, 2SC1740Q	TR308
482-0117	Transistor, 2SA854Q	TR351
482-0286	Transistor, 2SC1722BKS	TR352
482-0261	Transistor, 2SC1740Q	TR353
482-0282	Transistor, 2SA826Q	TR354
481-0149	Diode (SI) IS2473-T72	X301
481-0149	Diode (SI) IS2473-T72	X302
481-0099	Diode (GE) IN60TVGL	X303
481-0219	Diode (SI) ISS81	X304
481-0219	Diode (SI) ISS81	X305
481-0219	Diode (SI) ISS81	X306
481-0220	Diode (SI) MA26W	X307
481-0149	Diode (SI) IS2473	X308
481-0149	Diode (SI) IS2473-T72	X351
481-0149	Diode (SI) IS2473-T72	X352
481-0149	Diode (SI) IS2473-T72	X53

MONITOR 19" VERTICAL - WELLS GARDNER 19K 4675 DRAWING NUMBER 200-0022

Part No.	Description	Ref. Des
481-0149	Diode (SI) IS2473-T72	X54
481-0221	Diode (Zener) RD10EBI	X355
481-0222	Diode (HS) RU-1 0.3 US	X366
Miscellaneous		
204X9300-958	Socket, 6 pin	J301
204X9300-958	Socket, 6 pin	J302
204X9601-195	Plug, 6 pin	P301
204X9601-195	Plug, 6 pin	P302
201X0000-534	Thermistor	TH301
Transformers & Coils		
101-0030	Coil, horiz osc	L351

POWER BOARD

Resistors		
	180 Ohm, ±10%m 15W WW	R501
	100 Ohm, ±5%, 1/8W carbon	R502
	1k Ohm, ±5%, 1/8W carbon	R503
	560 Ohm, ±5%, 1/8W carbon	R504
	39k Ohm, ±5%, 1W MO	R505
	6.8k Ohm, ±5%, 1/8W carbon	R506
	Varistor volt adj	VR501
Capacitors		
	10 uf, 160V electrolytic	C501
	1500 pf, 50V, ±10% ceramic	C502
	22 uf, 16V electrolytic	
Semiconductors		
482-0261	Transistor, 2SC1740Q	TR501
482-0288	Transistor, 2SC1454	TR502
481-0135	Diode (SI) zener EQB01-06V	X501
481-0149	Diode (SI) IS2473-T72	X502
Miscellaneous		
	Socket, 6 pin	J501

Part No.	Description	Ref. Des
	Plug, 6 pin	P501
	Thermister	TH501
	NECK BOARD	
Resistors		
	1.8k Ohm, ±5%, 1/8W carbon	R401
	1.8k Ohm, ±5%, 1/8W carbon	R402
	1.8k Ohm, ±5%, 1/8W carbon	R403
	150 Ohm, ±5%, 1/8W carbon	R404
	220 Ohm, ±5%, 1/8W carbon	R405
	150 Ohm, ±5%, 1/8W carbon	R406
	390 Ohm, ±5%, 1/4W carbon	R407
	390 Ohm, ±5%, 1/4W carbon	R408
	4.7k Ohm, ±5%, 1/8W carbon	R409
	4.7k Ohm, ±5%, 1/8W carbon	R410
	4.7k Ohm, ±5%, 1/8W carbon	R411
	12k Ohm, ±5%, 2.0W metal oxide	R412
	12k Ohm, ±5%, 2.0W metal oxide	R413
	12k Ohm, ±5%, 2.0W metal oxide	R414
	2.7k Ohm, ±10%, 1/2W comp	R415
	2.7k Ohm, ±10%, 1/2W comp	R416
	2.7k Ohm, ±10%, 1/2W comp	R417
	470k Ohm, ±10%, 1/2W comp	R418
	330k Ohm, ±10%, 1/2W comp	R419
	1.0 Ohm, ±10%, 2W metal oxide	R422
	270 Ohm, ±5%, 1/4W carbon	R423
	500 Ohm varistor R drive	VR401
	500 Ohm varistor B drive	VR402
	5k Ohm varistor R cutoff	VR403
	5k Ohm varistor G cutoff	VR404
	5k Ohm varistor B cutoff	VR405
	1M Ohm varistor screen	VR406

MONITOR 19" VERTICAL - WELLS GARDNER 19K 4675 DRAWING NUMBER 200-0022

Part No.	Description	Ref. Des
Capacitors		
	1000 pf, 50V, 10% ceramic	C401
	1000 pf, 50V, 10% ceramic	C402
	1000 pf, 50V, 10% ceramic	C403
	1500 pf, 2 kV ±10% ceramic	C404
	100 pf, 12 kV, ±10% ceramic	C405
	.01 uf, 500V, ±10% ceramic	C406
	1500 pf, 2 kV, ±10% ceramic	C407
	68 pf, 50V, ±10% ceramic	C408
	68 pf, 50V, ±10% ceramic	C409
	68 pf, 50V, ±10% ceramic	C410
Semiconductors		
482-0155	Transistor, 2SC1514 (R output)	TR401
482-0155	Transistor, 2SC1514 (G output)	TR402
482-0155	Transistor, 2SC1514 (B output)	TR403
481-0223	Diode, IS2367 (B output)	X404
481-0223	Diode, IS2367 (protector)	X405
481-0223	Diode, IS2367 (protector)	X406
Miscellaneous		
	Socket, 5 pin	J401
	Socket, 3 pin	J402
	Plug, 5 pin	P401
	Plug, 3 pin	P402
800-3253 High Voltage Assembly (T7010)		
	6.8 Ohm, ±10% 15W WW resistor	R701
220-0223	Focus control	VR702
	Diode (SI HV))	X701
	Diode (SI HV)) Part of T701	X702
	Diode (SI HV))	X703

MONITOR 19" VERTICAL - WELLS GARDNER 19K 4675 DRAWING NUMBER 200-0022

Part No.	Description	Ref. Des.
Final Assembly Parts		
200-0020	19VJTP22 pix tube	
800-3254	Assy purity shld/degaussing	
800-3255	Lateral/purity assembly	
200-0066	Yoke, deflection	
213-0021	CRT socket	
800-3253	HV unit (T701)	
	Plug, line cord (K4625, K4675, K4677)	
	Plug, line cord (K4626, K4676)	
180-0021	Degaussing coil (L701)	
	INTERFACE FACE BOARD (P317)	
Resistors		
	91 Ohm ±5%, 1/2W carbon	R201
	22k Ohm, ±10%, 1/4W carbon	R202
	1k Ohm, ±5%, 1/2W carbon	R203
	100 Ohm, ±5%, 1/4W carbon	R204
	100k Ohm, ±5%, 1/4W carbon	R205
	330 Ohm, ±10%, 1/2W carbon	R206
	2.2k Ohm, ±5%, 1/4W carbon	R207
	2.2k Ohm, ±5%, 1/4W carbon	R208
	100k Ohm, ±5%, 1/4W carbon	R209
	100 Ohm, ±5%, 1/4W carbon	R210
	220 Ohm, ±5%, 1/4W carbon	R211
	220 Ohm, ±5%, 1/4W carbon	R212
	220 Ohm ±5%, 1/4W carbon	R213
	150 Ohm, ±5%, 1/4W carbon	R214
	150 Ohm, ±5%, 1/4W carbon	R215
	150 Ohm, ±5%, 1/4W carbon	R216
	100 Ohm, ±5%, 1/4W carbon	R217
	1k Ohm, ±5%, 1/2W carbon	R218
	1k Ohm, ±5%, 1/2W carbon	R219
	680 Ohm, ±5%, 1/2W carbon	R220

Part No.	Description	Ref. Des.
Resistors (cont)	270 Ohm, ±5%, 1/2W carbon	R221
	270 Ohm, ±5%, 1/2W carbon	R222
	100k Ohm, ±5%, 1/4W carbon	R223
	1k Ohm, ±5%, 1/2W carbon	R224
	8.2k Ohm, ±5%, 1/4W carbon	R225
	8.2k Ohm, ±5%, 1/4W carbon	R226
	8.2k Ohm, ±5%, 1/4W carbon	R227
	390 Ohm, ±5%, 1/2W carbon	R228
	1.5k Ohm black level control	VR201
	10k Ohm horizontal centering	VR202
Capacitors		
	1000 uf, 16V electrolytic	C201
	470 uf, 16V lytic	C202
	.022 uf, 10% 100V	C203
	680 pf, 10%, Z5F	C204
	.01 uf, 10%, 100V	C205
Semiconductors		
482-0030	Transistor (NPN) 2N3904	TR201
482-0030	Transistor (NPN) 2N3904	TR202
482-0030	Transistor (NPN) 2N3904	TR203
482-0289	Transistor (PNP) MPS-A70	TR204
482-0289	Transistor (PNP) MPS-A70	TR205
482-0289	Transistor (PNP) MPS-A70	TR206
482-0030	Transistor (NPN) 2N3904	TR207
482-0030	Transistor (NPN) 2N3904	TR208
482-0030	Transistor (NPN) 2N3904	TR209
482-0030	Transistor (NPN) 2N3904	TR210
481-0224	Diode silicon FDH-444	X201
481-0224	Diode silicon FDH-444	X202
481-0224	Diode silicon FDH-444	X203
481-0224	Diode silicon FDH-444	X204
481-0014	Diode, zener 3.9V, 5%, 0.5W IN5228B	ZD201

Part No.	Description	Ref. Des.
Miscellaneous		
	Socket, 6 pin	J201
	Socket, 6 pin	J202
	Plug, 4 pin	P203
	Plug, 3 pin	P204
	Plug, 6 pin	P205
Resistors		
	91 Ohm ±5%, 1/2W carbon	R201
	22k Ohm, ±10%, 1/4W carbon	R202
	1k Ohm, ±5%, 1/2W carbon	R203
	100 Ohm, ±5%, 1/4W carbon	R204
	100k Ohm, ±5%, 1/4W carbon	R205
	330 Ohm, ±10%, 1/2W carbon	R206
	2.2k Ohm, ±5%, 1/4W carbon	R207
	2.2k Ohm, ±5%, 1/4W carbon	R208
	100k Ohm, ±5%, 1/4W carbon	R209
	100 Ohm, ±5%, 1/4W carbon	R210
	200 Ohm, ±5%, 1/4W carbon	R211
	200 Ohm, ±5%, 1/4W carbon	R212
	200 Ohm ±5%, 1/4W carbon	R213
	200 Ohm, ±5%, 1/4W carbon	R214
	200 Ohm, ±5%, 1/4W carbon	R215
	200 Ohm, ±5%, 1/4W carbon	R216
	100 Ohm, ±5%, 1/4W carbon	R217
	1k Ohm, ±5%, 1/2W carbon	R218
	1k Ohm, ±5%, 1/2W carbon	R219
	1k Ohm, 5%, 1/2W carbon	R220
	200 Ohm, 5%, 1/2W carbon	R221
	200 Ohm, 5%, 1/2W carbon	R222
	100k Ohm, 5%, 1/4W carbon	R223
	680k Ohm, 5%, 1/2W carbon	R224
	8.2k Ohm, 5%, 1/4W carbon	R225

Part No.	Description	Ref. Des.
Resistors (cont)	8.2k Ohm, 5%, 1/4W carbon	R226
	8.2k Ohm, 5%, 1/4W carbon	R227
	390 Ohm, 5%, 1/2W carbon	R228
	1.5k Ohm black level control	VR201
	10k Ohm horizontal centering	VR202
Capacitors		
	1000 uf, 16V electrolytic	C201
	470 uf, 16V lytic	C202
	.022 uf, 10% 100V	C203
	680 pf, 10%, Z5F	C204
	.01 uf, 10%, 100V	C205
Semiconductors		
482-0030	Transistor (NPN) 2N3904	TR201
482-0030	Transistor (NPN) 2N3904	TR202
482-0030	Transistor (NPN) 2N3904	TR203
482-0289	Transistor (PNP) MPS-A70	TR204
482-0289	Transistor (PNP) MPS-A70	TR205
482-0289	Transistor (PNP) MPS-A70	TR206
482-0030	Transistor (NPN) 2N3904	TR207
482-0030	Transistor (NPN) 2N3904	TR208
482-0030	Transistor (NPN) 2N3904	TR209
482-0030	Transistor (NPN) 2N3904	TR210
481-0224	Diode silicon FDH-444	X201
481-0224	Diode silicon FDH-444	X202
481-0224	Diode silicon FDH-444	X203
481-0224	Diode silicon FDH-444	X204
481-0014	Diode, zener 3.9V, 5%, 0.5W IN5228B	ZD201
Miscellaneous		
	Socket, 6 pin	J201
	Socket, 6 pin	J202
	Plug, 4 pin	P203
	Plug, 3 pin	P204
	Plug, 6 pin	P205

P.C. BOARD LAYOUT

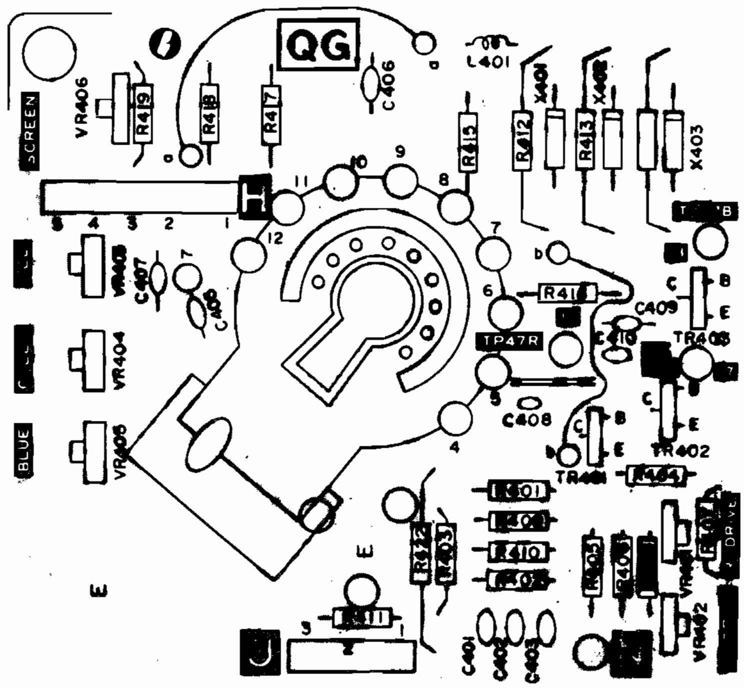
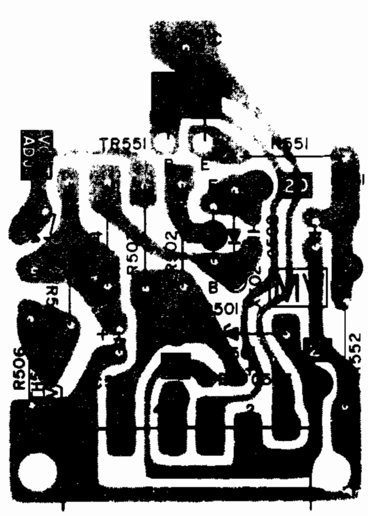


FIGURE 13. NECK P.C. BOARD



P.C. BOARD LAYOUT

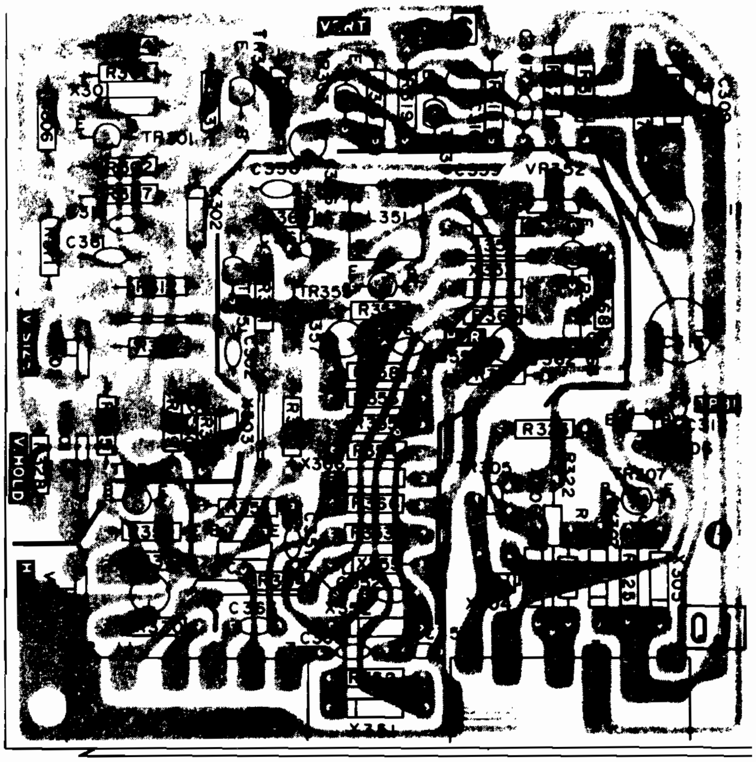
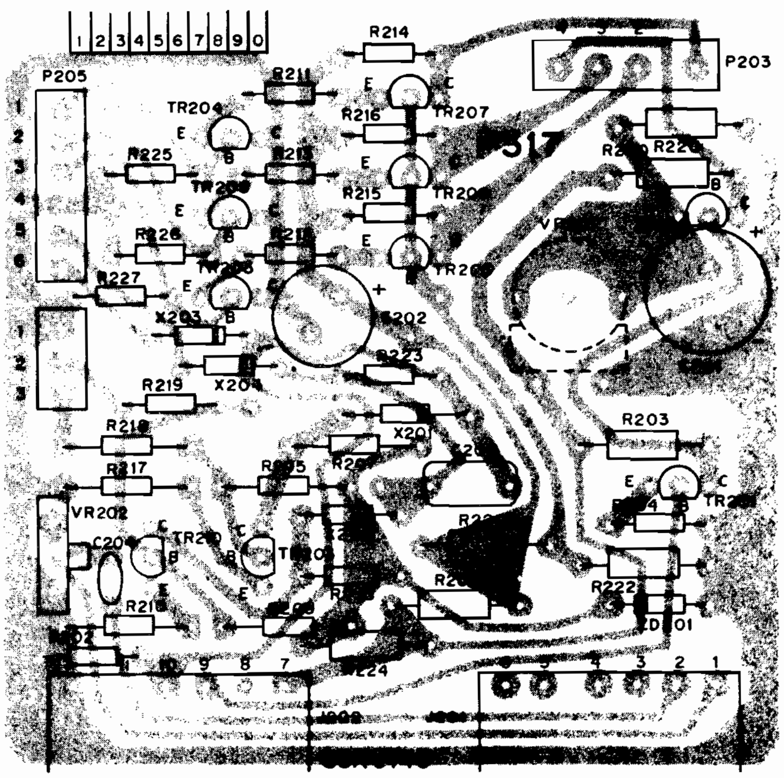
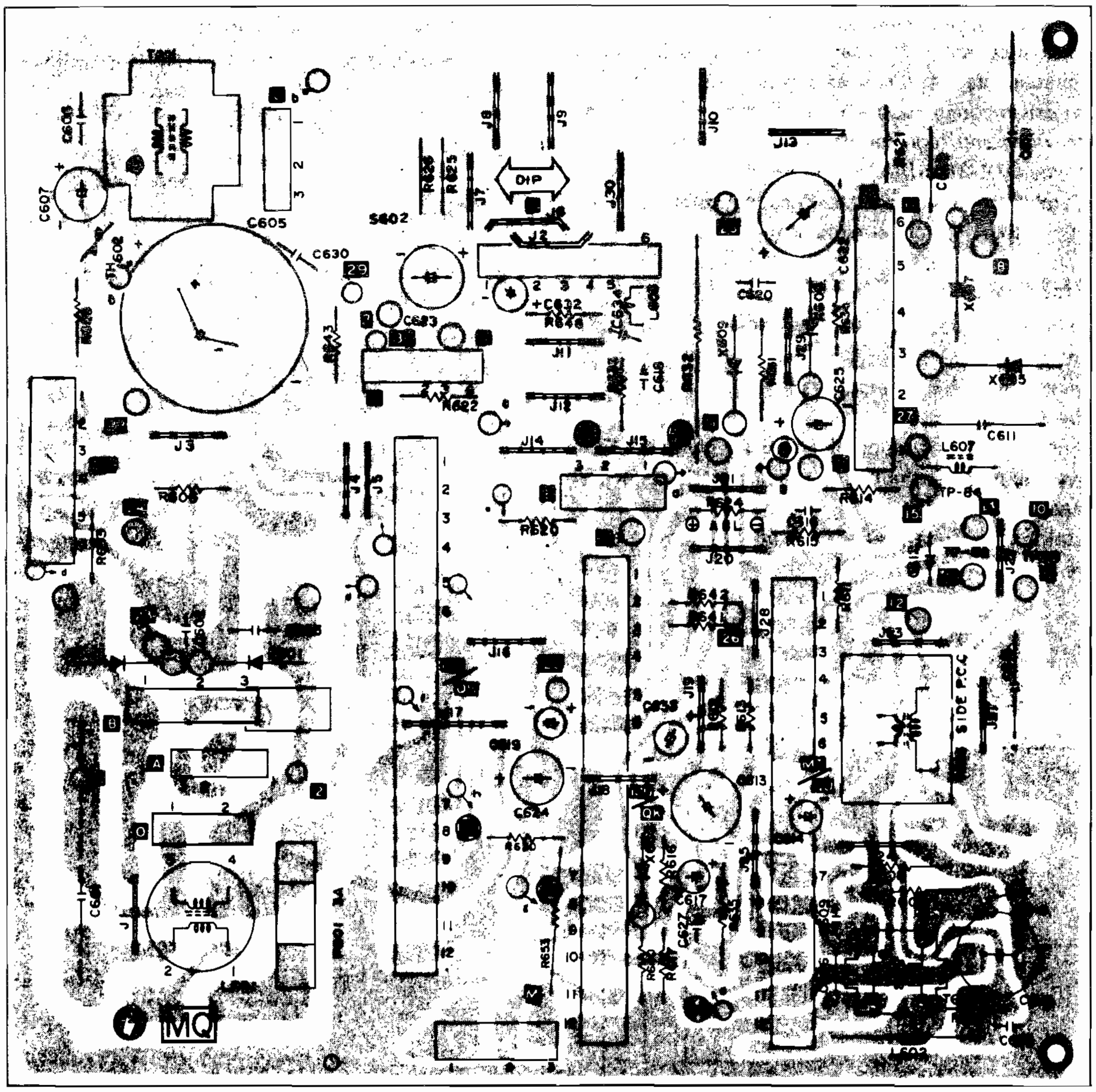
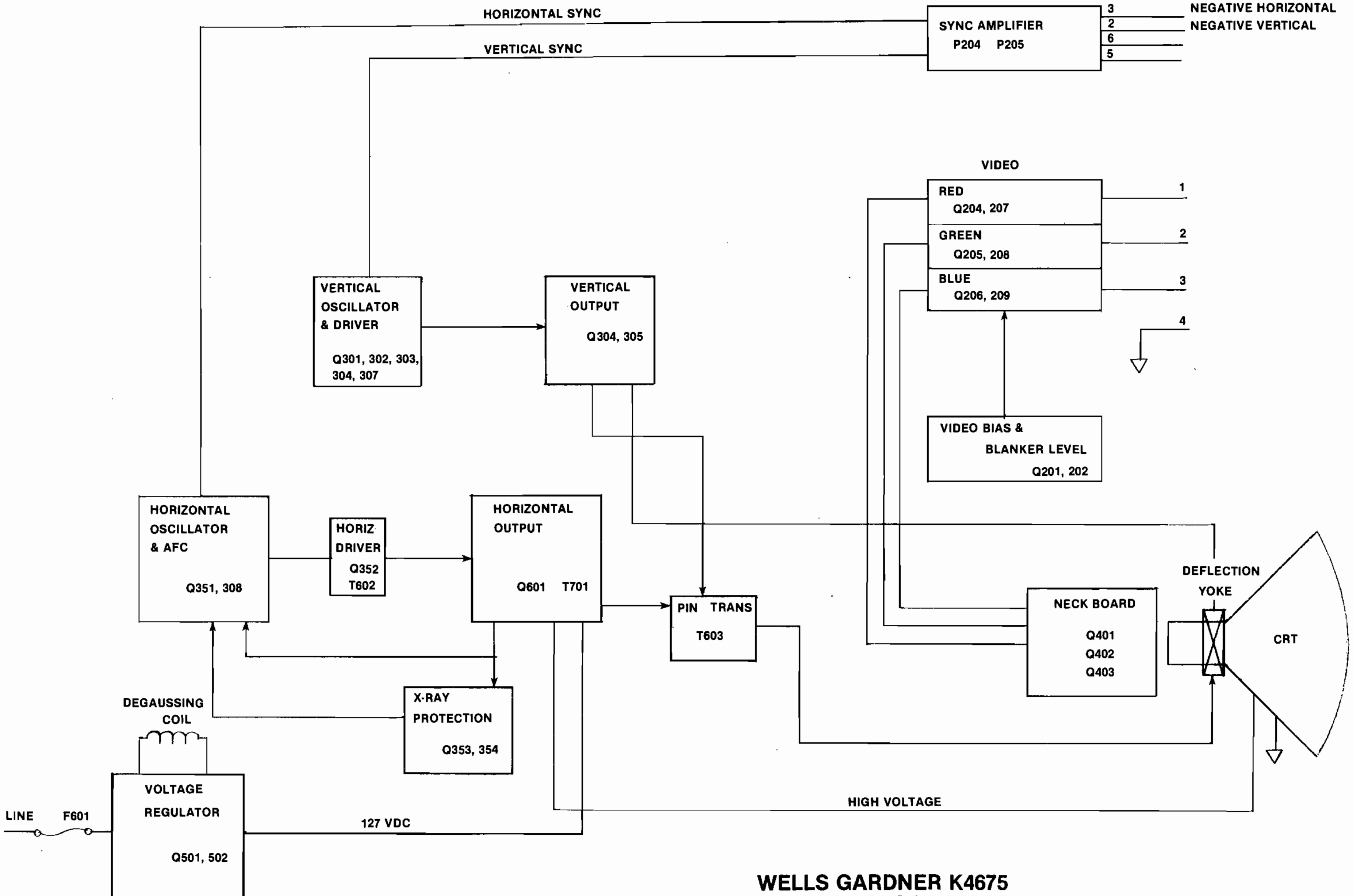


FIGURE 15. HORIZ/VERT P.C. BOARD



P.C. BOARD LAYOUT





WELLS GARDNER K4675
FUNCTIONAL BLOCK DIAGRAM
200-0022

PCB ASSEMBLY

Part No.	Description	Ref Des.
Resistors	R carbon 1/4 sb 680 Ohm	R101
	R carbon 1/4 sb 680 Ohm	R102
	R carbon 1/4 sb 2.2k Ohm	R103
	R carbon 1/4 sb 390 Ohm	R104
	R carbon 1/4 sb 2.2k Ohm	R105
	R carbon 1/4 sb 390 Ohm	R106
	R carbon 1/4 sb 1K Ohm	R107
	R carbon 1/4 sb 680 Ohm	R111
	R carbon 1/4 sb 780 Ohm	R112
	R carbon 1/4 sb 15K Ohm	R113
	R carbon 1/4 sb 390 Ohm	R114
	R carbon 1/4 sb 2.2K Ohm	R115
	R carbon 1/4 sb 390 Ohm	R116
	R carbon 1/4 sb 1K Ohm	R117
	R carbon 1/4 sb 680 Ohm	R121
	R carbon 1/4 sb 680 Ohm	R122
	R carbon 1/4 sb 390 Ohm	R124
	R carbon 1/4 sb 2.2K Ohm	R125
	R carbon 1/4 sb 390 Ohm	R126
	R carbon 1/4 sb 1K Ohm	R127
	R carbon 1/4 sb 10K Ohm	R401
	R carbon 1/4 sb 8.2K Ohm	R402
	R carbon 1/4 sb 3.3K Ohm	R403
	R carbon 1/4 sb 8.2K Ohm	R404
	R carbon 1/2 sb 270 Ohm	R405
	R carbon 1/4 sb 10K Ohm	R406
	R carbon 1/4 sb 680 Ohm	R407
	R carbon 1/4 sb 2.2K Ohm	R408
	R carbon 1/4 sb 12K Ohm	R409
	R carbon 1/4 sb 10K Ohm	R410

Part No.	Description	Ref Des.
Resistors (cont)	R fuseable FMR1/4W 100 Ohm	R413
	R carbon 1/4 sb 2.2K Ohm	R414
	R metal 10K Ohm	R415
	R fuseable FMR1/4C 22 Ohm	R416
	R cement RGBIOH(V) 220 Ohm	R417
	R metal 4.7K Ohm	R418
	R carbon 1/2 sb 2.2K Ohm	R419
	R carbon 1/4 sb 68K Ohm	R421
	R carbon 1/4 sb 6.8 Ohm	R422
	R carbon 1/4 sb 470 Ohm	R423
	R fuseable FMR1/4W	R424
	R carbon 1/2 sb 390 Ohm	R425
	R carbon 1/4 sb 6.8K Ohm	R426
	R fuseable FMR1/2W 1.2 Ohm	R427
	R fuseable FMR2W 1.2 Ohm	R428
	R carbon 1/4 sb 330 Ohm	R501
	R carbon 1/4 sb 10K Ohm	R502
	R carbon 1/4 sb 10K Ohm	R504
	R carbon 1/4 sb 27k Ohm	R505
	R carbon 1/4 sb 390K Ohm	R506
	R carbon 1/4 sb 18K Ohm	R507
	R carbon 1/4 sb 68K Ohm	R508
	R carbon 1/4 sb 6.8K Ohm	R509
	R carbon 1/4 sb 10K Ohm	R510
	R carbon 1/4 sb 1.2K Ohm	R511
	R carbon 1/4 sb 470 Ohm	R512
	R metal RNL1/4 3.3K Ohm	R513
	R metal RNL1/4 560K Ohm	R514
	R metal 6.8K Ohm	R515
	R carbon 1/2 sb 8.2K Ohm	R516
	R metal 3.3K Ohm	R517
	R carbon 1/4 sb 8.2K Ohm	R518

Part No.	Description	Ref Des.
Resistors (cont)	R carbon 1/2 sb 4.7K Ohm	R519
	R carbon 1/2 sb 33 Ohm	R520
	R carbon 1/4 sb 10K Ohm	R521
	R fuseable FMR1/4W 330 Ohm	R522
	R fuseable FMR1/4W 330 Ohm	R523
	R fuseable FMR1/4W 330 Ohm	R524
	R fuseable FMR1/2W 4.7 Ohm	R525
	R carbon 1/4 sb 22K Ohm	R527
	R carbon 1/4 sb 22K Ohm	R528
	R carbon 1/4 sb 680 Ohm	R529
	R carbon 1/4 sb 4.7K Ohm	R530
	R carbon 1/4 sb 470 Ohm	R531
	R carbon 1/4 sb 680 Ohm	R532
	R carbon 1/4 sb 47 Ohm	R533
	R fuseable FMR1/4W 330 Ohm	R901
	R carbon 1/4 sb 47K Ohm	R902
	R fuseable FMR1/4W 68 Ohm	R903
	R metal 15K Ohm	R904
	R carbon 1/4 sb 1M Ohm	R905
	R carbon 1/4 sb 15K Ohm	R906
	R carbon 1/4 sb 68K Ohm	R907
	R carbon 1/4 sb 68K Ohm	R908
	R carbon 1/4 sb 4.7K Ohm	R909
	R variable V8K4-1 5K Ohm	RV101
	R variable V8K4-1 5K Ohm	RV102
	R variable V8K4-1 5K Ohm	RV103
	R variable V8K4-1 5K Ohm	RV104
	R variable RVA0911H320-7-502M	RV404
	R variable RVG0911H320-7-303M	RV402
	R variable RVA0911H320-7-501M	RV403
	R variable RVA0911H320-7-302M	RV501
	R variable RVG0911H320-7-303M	RV502

Part No.	Description	Ref Des.
Resistors (cont)	R semifixed V8K4-1 3K Ohm	R910
Capacitors		
	C electro CE04 16V100(M)	C101
	C electro CE04 50V 1(M)	C401
	C polyester DEP50V 333K	C402
	C polyester DEP50V 333K	C403
	C tantal D 16V 2.2 uf K	C404
	C ceramic DD104-63B561K50V	C405
	C electro CE04 16V 470 (M)	C406
	C electro CE04 25V 10 (M)	C407
	C tantal D 25 10 uf K	C408
	C electro CE04 100V 10 (M)	C409
	C electro CE04 50V 1 (M)	C410
	C electro CE04 35V 220 (M)	C411
	C electro CE04 63V 470 (M)	C412
	C electro CE04 16V 470 (M)	C413
	C electro CE04 25V 10 (M)	C414
	C ceramic DD09]63B222K500V	C415
	C electro CE04 100V 10 (M)	C416
	C electro CE04 35V 220 (M)	C417
	C electro CE04 160V 22 (M)	C418
	C ceramic DD09-63B222K500V	C419
	C electro CE04 25V 10 (M)	C501
	C electro CE04 25V 10 (M)	C502
	C electro CE04 50V 1 (M)	C503
	C ceramic DD105-63E222P50V	C504
	C electro CE04 50V 1 (M)	C505
	C polyester DEP 50V 473K	C506
	C polyester DEP 50V 473K	C507
	C polypro DTW100V 562-G	C508
	C electro CE04 50V 1 (M)	C510
	C electro CE04 16V 220 (M)	C511

Part No.	Description	Ref Des.
Capacitors (Cont)	C ceramic DD05-63B561K500V	C512
	C ceramic DD10 63E472P500V	C513
	C ceramic DE1510R 222K	C514
	C ceramic DE1510R 222K	C515
	C ceramic DE1410R 182K	C516
	C ceramic DE1110R 821K	C517
	C ceramic DD104-63B821K 50V	C518
	C polipro DTW200VDC 0.47 uf M	C520
	C electro CE04 50V 47 (M)	C523
	C electro CE04 160V 47 (M)	C524
	C ceramic DD09-63B222K500V	C525
	C electro CE04 160V 1 (M)	C526
	C electro CE04 160V 10 (M)	C527
	C p]oripro DTW630VDC 0.01 uf - M	C528
	C electro CE04 25V 10 (M)	C529
	C polypro UL LHX125VAC 0.1 uf	C901
	C ceramic MVDE0807E222ZAC250V	C902
	C ceramic MVDE0807E222ZAC250V	C903
	C ceramic DD09-63B 22K 500V	C904
	C electro RPE 180V (30o) 680 (M)	C905
	C electro CE04 160V 22 (M)	C906
	C ceramic DD05-63B 221K 500V	C907
Coils		
180-0033	L choke	L401
181-0034	L choke	L501
180-0032	L choke	L502
181-0033	L linear	L503
181-0032	L size	L504
180-0031	L choke	L505
180-0030	L choke	L506
180-0029	L choke	L507
180-0028	L choke	L901

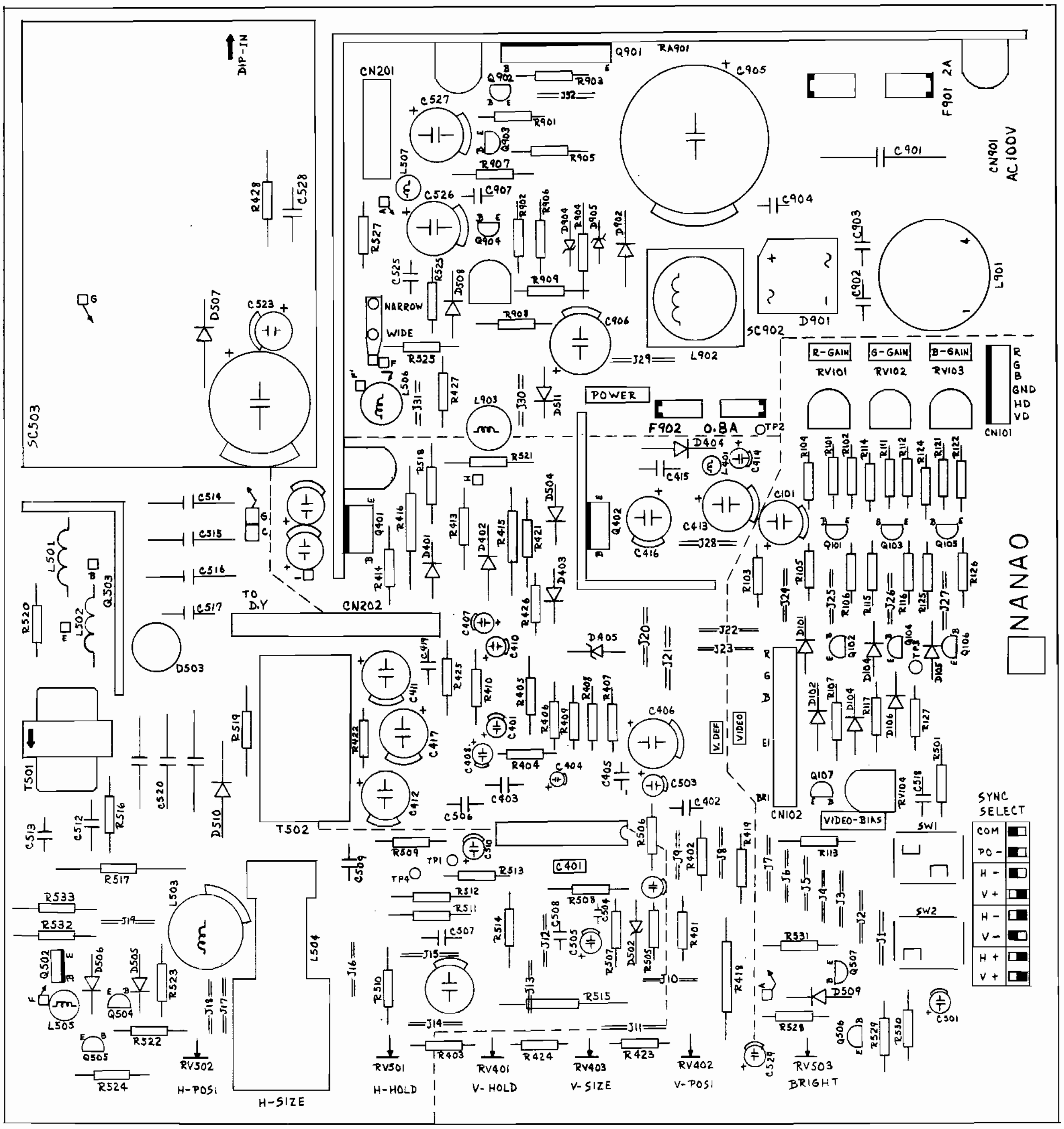
Part No.	Description	Ref Des.
180-0027	L choke	L902
180-0026	L choke	L903
Transformers		
560-0102	T H drive	T501
560-0101	T pin corr	T502
560-0100	T FBT MSH1FAC02	T503
Diodes		
481-0164	Diode 1S1588	D101
481-0164	Diode 1S1588	D102
481-0164	Diode 1S1588	D103
481-0164	Diode 1S1588	D104
481-0164	Diode 1S1588	D105
481-0164	Diode 1S1588	D106
481-0164	Diode 1S1588	D401
481-0234	Diode 1S1886	D402
481-0175	Diode 1S2076A	D403
481-0119	Diode RU2	D404
481-0233	Diode EQA01-24	D405
481-0164	Diode 1S1588	D501
481-0137	D zener EQA01-07S	D502
481-0164	Diode 1S1588	D504
481-0175	Diode 1S2076A	D505
481-0175	Diode 1S2067A	D506
481-0119	Diode RU2	D507
481-0232	Diode S5295G	D508
481-0164	Diode 1S1588	D509
481-0232	Diode S5295G	D510
481-0164	Diode 1S1588	D511
481-0137	Diode EQA01-07S	D512
481-0235	D bridge 3D4B41	D901
481-0119	Diode RU2	D902
481-0137	D zener EQA01-07S	D904

Part No.	Description	Ref Des.
481-0137	D zener EQA01-07S	D905
Transistors		
482-0261	Transistor 2SC1740	Q101
482-0261	Transistor 2SC1740	Q102
482-0261	Transistor 2SC1740	Q103
482-0261	Transistor 2SC1740	Q104
482-0261	Transistor 2SC1740	Q105
482-0261	Transistor 2SC1740	Q106
482-0111	Transistor 2SA673	Q107
Miscellaneous		
	Connector	CN201
	Connector	CN202
	Connector	CN203
	Assy accord	CD901
	Connector	CN901
510-0068	Switch SSA042	SW1
510-0068	Switch SSA042	SW2
	Pin terminal	TP1
	Pin terminal	TP2
	Pin terminal	TP3
	Pin terminal	TP4
Transistors		
482-0276	Transistor 2SD1138	Q401
482-0276	Transistor 2SD1138	Q402
482-0261	Transistor 2SC1740	Q501
482-0257	Transistor 2SC2688	Q502
482-0198	Transistor 2SD870	Q503
482-0201	Transistor 2SD763	Q504
482-0201	Transistor 2SD763	Q505
482-0111	Transistor 2SA673	Q506
482-0111	Transistor 2SA673	Q507
	Transistor 2SC2555	Q901

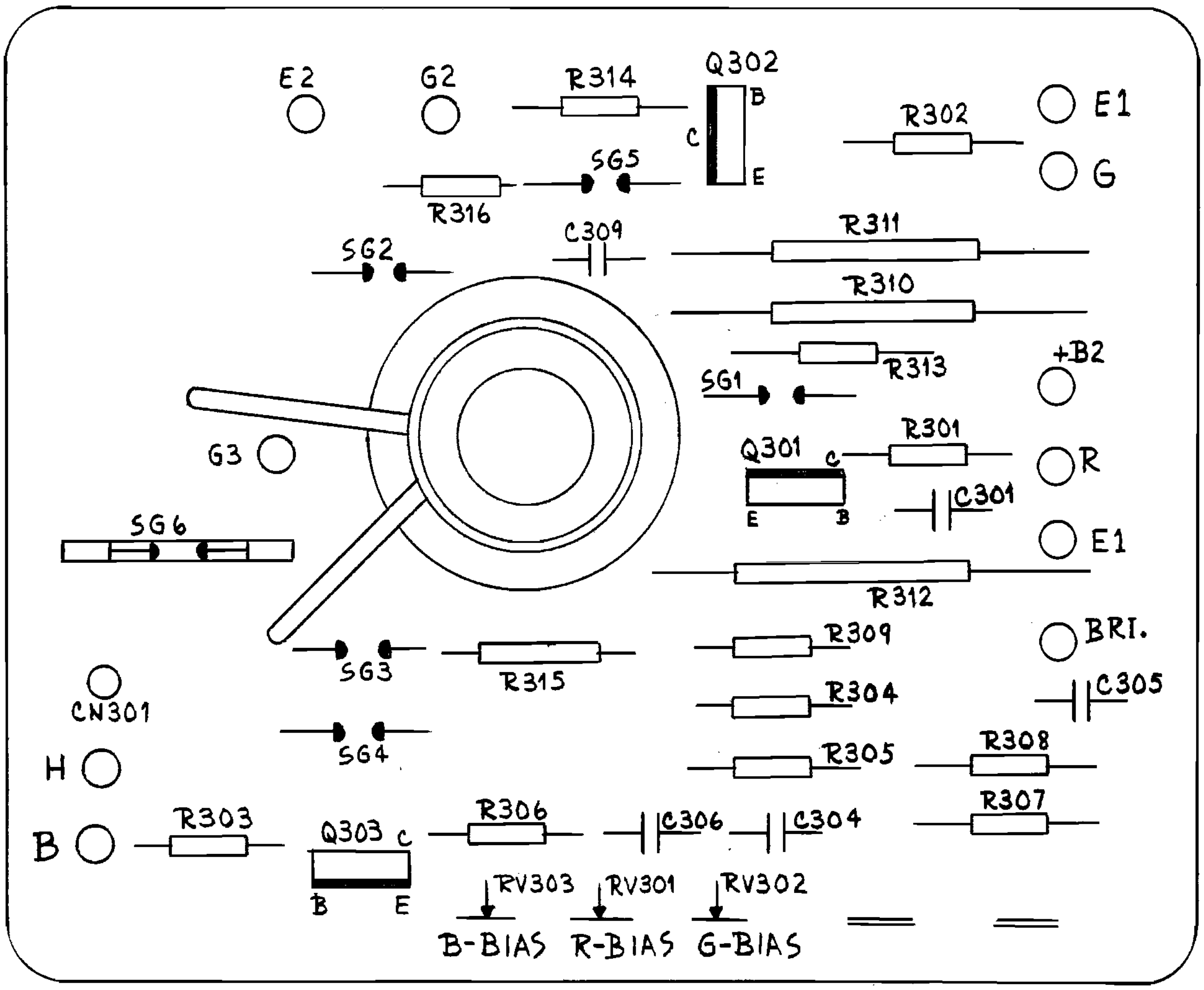
Part No.	Description	Ref. Des.
482-0273	Transistor 2SA1091	Q902
482-0167	Transistor 2SC2482	Q903
482-0167	Transistor 2SC2482	Q904
Miscellaneous		
313-0051	I C HA11235	IC401
	Connector	CN101
	Connector	CN102
	Fuse	F901
	Fuse clip	CF901
	Fuse	
	Fuse clip	
	Shield case	
560-0098	Assy tr (v-out)	
560-0099	Assy tr (h-out)	
200-0081	Assy radiator A	
	NECK BOARD PCB	
Resistors		
	R carbon 1/4 sb 220 Ohm	R301
	R carbon 1/4 sb 220 Ohm	R302
	R carbon 1/4 sb 220 Ohm	R303
	R carbon 1/4 sb 1.2K Ohm	R304
	R carbon 1/4 sb 1.2K Ohm	R305
	R carbon 1/4 sb 1.2K Ohm	R306
	R carbon 1/4 sb 330 Ohm	R307
	R carbon 1/4 sb 330 Ohm	R308
	R carbon 1/4 sb 330 Ohm	R309
	R metal 8.2K Ohm	R310
	R metal 8.2K Ohm	R311
	R metal 8.2K Ohm	R312
	R solid 1/2 2.2K Ohm	R313
	R solid 1/2 2.2K Ohm	R314
	R solid 1/2 2.2K Ohm	R315

Part No.	Description	Ref. Des.
Resistors (cont)	R solid 1/2 1M Ohm	R316
	R variable RVA0911H-306-1 5K Ohm	RV301
	R variable RVA0911H-306-2 5K Ohm	RV302
	R variable RVA0911H-306-3 5K Ohm	RV303
	R variable RVA0911H-306-7 220 Ohm	RV304
	R variable RVA0911H-306-7 220 Ohm	RV305
Capacitors		
	C ceramic DD104-63B 271K 50V	C304
	C ceramic DD104-63B 271K 50V	C305
	C ceramic DD104-63B 271K 50V	C306
	C ceramic DE0705-B 102K 1KV	C309
Transistors		
482-0257	Transistor 2SC2688	Q301
482-0257	Transistor 2SC2688	Q302
482-0257	Transistor 2SC2688	Q303

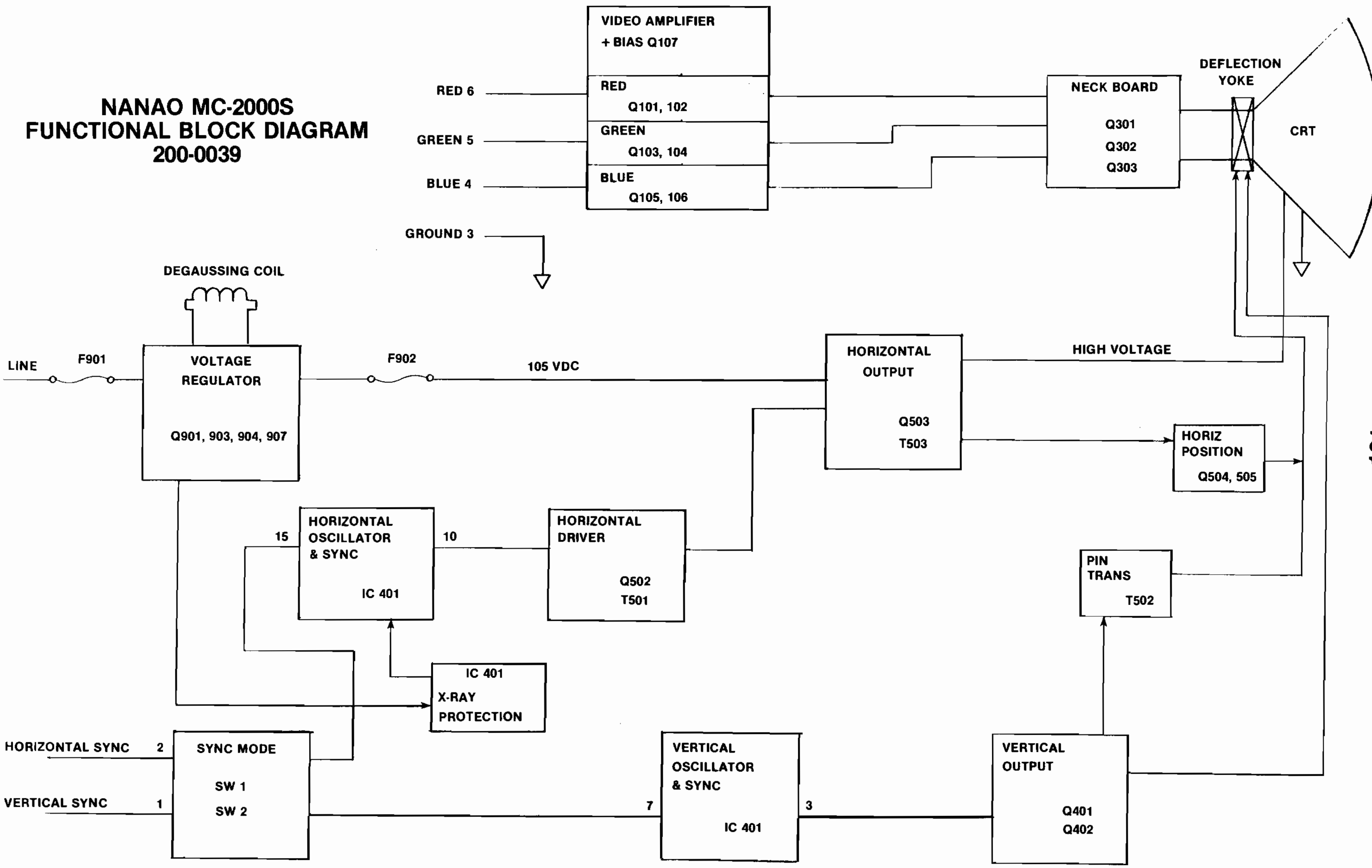
ASSY MAIN PC BOARD, NANAO-200 0039



ASSY, NECKBOARD
NANAO 200 0039



NANAO MC-2000S FUNCTIONAL BLOCK DIAGRAM 200-0039



MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		CAPACITORS	
1		1000 uF, 16V, Electrolytic	C201
2		330 pF, 500V, Ceramic	C202
3		220 pF, 500V, Ceramic	C203
4		220 pF, 500V, Ceramic	C204
5		470 uF, 16V, Electrolytic	C205
6		0.1 uF, 125V Mylar	C206
7		.022 uF, 100V Mylar	C207
8		330 uF, 50V Electrolytic	C301
9		0.033 uF, 50V Mylar	C302
10		3.3 uF, 50V Electrolytic	C303
11		0.068 pF, 50V Mylar	C304
12		2.2 uF, 16V Tantal	C306
13		0.033 uF, 50V Mylar	C307
14		3.3 uF, 50V Electrolytic	C308
15		0.068 uF, 100V PP	C309
16		10 uF, 100V Electrolytic	C310
17		10 uF, 160V Electrolytic	C311
18		1000 pF, 500V Ceramic	C312
19		47 uF, 160V Electrolytic	C313
20		0.033 uF, 200V PP	C314
21		1 uF, 50V Electrolytic	C315
22		1 uF, 50V Electrolytic	C351
23		47 uF, 25V Electrolytic	C352
24		0.0082 pF, 50V Mylar-PP	C353
25		47 uF, 25V Electrolytic	C354
26		0.0068 pF, 50V Mylar	C355
27		0.01 uF, 500V Ceramic	C356
28		100 pF, 500V Ceramic	C359
29		0.0033 pF, 500V Ceramic	C360

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		CAPACITORS	
30		0.01 uF, 500V Ceramic	C361
31		0.01 uF, 50V Ceramic	C362
32		8700 pF, 1.5 KV PP	C363
33		0.33 uF, 200V PP	C365
34	150-0074	22 uF, 25V Electrolytic	C366
35		6 uF, 500V Ceramic	C367
36		0.01 uF, 50V Ceramic	C368
37		0.1 uF, 100V PP	C372
38		470 uF, 500V Ceramic	C380
39		0.1 uF, 125V Mylar	C501
40		1500 pF, 500V Ceramic	C502
41		2200 pF, 125V Ceramic	C503
42		2200 pF, 125V Ceramic	C504
43		560 uF, 200V Electrolytic	C505
44		22 uF, 160V Electrolytic	C506
45		47 uF, 160V Electrolytic	C507
46		1000 uF, 25V Electrolytic	C701
47		10 uF, 100V Electrolytic	C702
48		1000 pF, 500V Ceramic	C703

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		RESISTORS	
1		1K Ohm, 5%, 1/4W Carbon	R201
2		30 Ohm, 5%, 1/4W Carbon	R202
3		100 Ohm, 5%, 1/4W Carbon	R203
4		100 Ohm, 5%, 1/2W Carbon	R204
5		270 Ohm, 5%, 1/2W Carbon	R205
6		390 Ohm, 5%, 1/4W Carbon	R206
7		200 Ohm, 5%, 1/4W Carbon	R207
8		390 Ohm, 5%, 1/4W Carbon	R208
9		200 Ohm, 5%, 1/4W Carbon	R209
10		390 Ohm, 5%, 1/4W Carbon	R210
11		200 Ohm, 5%, 1/4W Carbon	R211
12		1K Ohm, 5%, 1/4W Carbon	R214
13		100K Ohm, 5%, 1/4W Carbon	R215
14		1K Ohm, 5%, 1/4W Carbon	R216
15		100 Ohm, 5%, 1/4W Carbon	R217
16		1K Ohm, 5%, 1/4W Carbon	R218
17		100K Ohm, 5%, 1/4W Carbon	R219
18		1K Ohm, 5%, 1/4W Carbon	R220
19		100 Ohm, 5%, 1/4W Carbon	R221
20		3.3 Ohm, 5%, 1/4W Carbon	R222
21		10 Ohm, 5%, 1/4W Carbon	R224
22		10 Ohm, 5%, 1/4W Carbon	R225
23		10 Ohm, 5%, 1/4W Carbon	R226
24		47K Ohm, 5%, 1/4W Carbon	R227
25		1K Ohm, 5%, 1/4W Carbon	R228
26		270 Ohm, 5%, 1/2W Carbon	R229
27		8.2K Ohm, 5%, 1/2W Comp.	R230
28		8.2K Ohm, 5%, 1/2W Comp.	R231
29		8.2K Ohm, 5%, 1/2W Comp.	R232

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		RESISTORS	
30		180 Ohm, 5%, 1/4W Carbon	R233
31		82 Ohm, 5%, 1/4W Carbon	R234
32		82 Ohm, 5%, 1/4W Carbon	R235
33		82 Ohm, 5%, 1/4W Carbon	R236
34		270 Ohm, 5%, 1/4W Carbon	R301
35		8.2K Ohm, 5%, 1/4W Carbon	R302
36		8.2K Ohm, 5%, 1/4W Carbon	R303
37		2.2K Ohm, 5%, 1/4W Carbon	R304
38		6.8K Ohm, 5%, 1/4W Carbon	R305
39		7.5K Ohm, 2%, 1/4W Carbon	R306
40		5.6K Ohm, 5%, 1/4W Carbon	R307
41		22K Ohm, 5%, 1/4W Carbon	R309
42		39K Ohm, 5%, 1/4W Carbon	R310
43		3.3K Ohm, 5%, 1/4W Carbon	R311
44		4.7K Ohm, 5%, 1/4W Carbon	R312
45		1K Ohm, 5%, 5W Carbon	R313
46		220 Ohm, 5%, 1/4W Carbon	R314
47		10 Ohm, 5%, 1/4W Carbon	R315
48		3.3K Ohm, 5%, 1/4W Carbon	R316
49		12 Ohm, 5%, 1/2W Carbon	R317
50		390 Ohm, 5%, 1/4W Carbon	R318
51		1K Ohm, 5%, 1/4W Carbon	R319
52		33K Ohm, 5%, 1/4W Carbon	R320
53		270K Ohm, 5%, 1/2W Carbon	R321
54		10K Ohm, 5%, 1/4W Carbon	R322
55		10K Ohm, 5%, 1/4W CArbon	R351
56		3.9K Ohm, 5%, 1/4W Carbon	R352
57		68K Ohm, 5%, 1/4W Carbon	R353
58		3.3K Ohm, 5%, 1/4W Carbon	R354

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		RESISTORS	
59		6.8K Ohm, 5%, 3W Metal Oxide	R355
60		56K Ohm, 5%, 1/2W Carbon	R358
61		470 Ohm, 5%, 1/4W Carbon	R360
62		10K Ohm, 5%, 1/4W Carbon	R361
63		1.8K Ohm, 5%, 1W Metal Oxide	R362
64		3.9K Ohm, 5%, 7W Metal Oxide	R363
65		22 Ohm, 5%, 1/4W Carbon	R364
66		33K Ohm, 5%, 1/4W Carbon	R365
67		10K Ohm, 5%, 1/4W Carbon	R367
68		330K Ohm, 5%, 1/2W Comp.	R368
79		680K Ohm, 5%, 1/2W Comp.	R369
70		33K Ohm, 5%, 1/4W Carbon	R370
71		1K Ohm, 5%, 1W Metal Oxide	R371
72		12K Ohm, 5%, 1W Metal Oxide	R372
73		6.8K Ohm, 5%, 1/2W Carbon	R375
74		270 Ohm, 5%, 2W Metal Oxide	R376
75		150 Ohm, 5%, 1/4W Carbon	R377
76		10K Ohm, 5%, 1/4W Carbon	R378
77		10K Ohm, 5%, 1/4W Carbon	R379
78		8.2K Ohm, 5%, 1/4W Carbon	R380
79		2.2K Ohm, 5%, 1W Metal Oxide	R381
80		150 Ohm, 5%, 1W Metal Oxide	R383
81		10K Ohm, 5%, 1/4W Carbon	R502
82		150 Ohm, 5%, 15W Metal Oxide	R503
83		47 Ohm, 5%, 1W Metal Oxide	R504
84		2.2K Ohm, 5%, 1/4W Carbon	R505
85		15 Ohm, 5%, 2W Metal Oxide	R506
86		330K Ohm, 5%, 1/2W Comp.	R507
87		3.3 Ohm, 5%, 10W WW	R601

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		RESISTORS	
88		2.2 Ohm, 5%, 2W Metal Oxide	R701
89		2.2 Ohm, 5%, 1/2W Carbon	R702
90		2K Ohm-B Semi-Fixed	VR201
91		5K Ohm-B Semi-Fixed	VR301
92		500 Ohm-B Semi-Fixed	VR303
93		2K Ohm-B Semi-Fixed	VR351
94		2K Ohm-B Semi-Fixed	VR352

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		SEMICONDUCTORS	
1	481-0175	Diode, IS2076-27	D203
2	481-0175	Diode, IS2076-27	D204
3	481-0175	Diode, IS2076-27	D205
4	481-0175	Diode, IS2076-27	D206
5	481-0175	Diode, IS2076-27	D207
6	481-0175	Diode, IS2076-27	D208
7	481-0175	Diode, IS2076-27	D209
8	481-0219	Diode, ISS81	D301
9	481-0175	Diode, IS2076-27	D302
10	481-0175	Diode, IS2076-27	D303
11	481-0244	Diode, RH-IV	D304
12	481-0244	Diode, RH-IV	D305
13	481-0175	Diode, IS2076-27	D306
14	481-0245	Diode, RM-1AV	D501
15	481-0245	Diode, RM-1AV	D502
16	481-0245	Diode, RM-1AV	D503
17	481-0245	Diode, RM-1AV	D504
18	481-0245	Diode, RM-1AV	D505
19	481-0245	Diode, RM-1AV	D506
20	481-0217	Diode, RU-2V	D701
21	481-0244	Diode, RH-1V	D702
22	482-0160	Transistor (NPN) 2SC1815GR	Q201
23	482-0160	Transistor (NPN) 2SC1815GR	Q202
24	482-0301	Transistor (PNP) 2SA562-Y-TM	Q203
25	482-0301	Transistor (PNP) 2SA562-Y-TM	Q204
26	482-0301	Transistor (PNP) 2SA562-Y-TM	Q205
27	482-0160	Transistor (NPN) 2SC1815GR	Q206
28	482-0160	Transistor (NPN) 2SC1815GR	Q207
29	482-0160	Transistor (NPN) 2SC1815GR	Q208

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		SEMICONDUCTORS	
30	482-0302	Transistor (NPN) 2SC1851GR	Q209
31	482-0302	Transistor (NPN) 2SC1851GR	Q210
32	482-0302	Transistor (NPN) 2SC1851GR	Q301
33	482-0161	Transistor (NPN) 2SC2073LBGL2	Q302
34	482-0161	Transistor (NPN) 2SC2073LBGL2	Q303
35	482-0303	Transistor (NPN) 2SC2482BK	Q351
36	482-0202	Transistor (NPN) 2SD898B	Q352
37	313-0132	IC HA11423	IC301
38	313-0129	IC STR381	IC501

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		TRANSFORMERS & COILS	
1	181-0035	Coil, (RF Choke)	L351
2	181-0036	Coil, Horiz., Size	L352
3	181-0037	Coil, Adg.	L701
4	560-0121	Transformer, Hor. Drive	T351
5	560-0122	HV-Unit M-11	T352

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		MISCELLANEOUS	
1		Fuse, 4 Amp. 125V	F501
2		Recap W Wire 3P-M-BG	J402
3		Plug, PWB 3P-J	P201
4		Plug, PWB 6P-Q	P202
5		Plug, PWB 4P-B	P401
6		Plug, PWB 2P-B	P501
7		Plug, PWB 4P-C	P601
8	478-0012	Thermistor	TH501

MAIN BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		FINAL ASSEMBLY	
1	200-0093	19VLTP22 Pix Tube	
2	834-5030	Lateral/Purity Assembly	
3	200-0092	Yoke Deflection	
4	834-5031	CRT Socket	
5	181-0038	Automatic Degaussing Coil Unit	

NECK BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		RESISTORS	
1		220 Ohm, 5%, 1/4W Carbon	R401
2		390 Ohm, 5%, 1/4W Carbon	R402
3		820 Ohm, 5%, 1/4W Carbon	R403
4		220 Ohm, 5%, 1/4W Carbon	R404
5		390 Ohm, 5%, 1/4W Carbon	R405
6		820 Ohm, 5%, 1/4W Carbon	R406
7		470 Ohm, 5%, 1/4W Carbon	R407
8		270 Ohm, 5%, 1/4W Carbon	R408
9		820 Ohm, 5%, 1/4W Carbon	R409
10		15K Ohm, 5%, 2W M.O. Forming	R410
11		15K Ohm, 5%, 2W M.O. Forming	R411
12		15K Ohm, 5%, 2W M.O. Forming	R412
13		2.7K Ohm, 5%, 1/2W Comp.	R413
14		2.7K Ohm, 5%, 1/2W Comp.	R414
15		2.7K Ohm, 5%, 1/2W Comp.	R415
16		2.2 Ohm, 5%, 2W Metal Oxide	R416
17		2.7K Ohm, 5%, 1/4W Carbon	R419
18		2.7K Ohm, 5%, 1/4W Carbon	R420
19		2.7K Ohm, 5%, 1/4W Carbon	R421
20		500 Ohm, -B Semi-Fixed	VR401
21		500 Ohm, -B Semi-Fixed	VR402
22		5K Ohm, -B Semi-Fixed	VR403
23		5K Ohm, -B Semi-Fixed	VR404
24		5K Ohm, -B Semi-Fixed	VR405

NECK BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		CAPACITORS	
1		1200 pF, 500V Ceramic	C401
2		1000 pF, 500V Ceramic	C402
3		1000 pF, 500V Ceramic	C403
4		1500 pF, 1.5 KV Ceramic	C404
5		0.01 uF, 500V Ceramic	C405

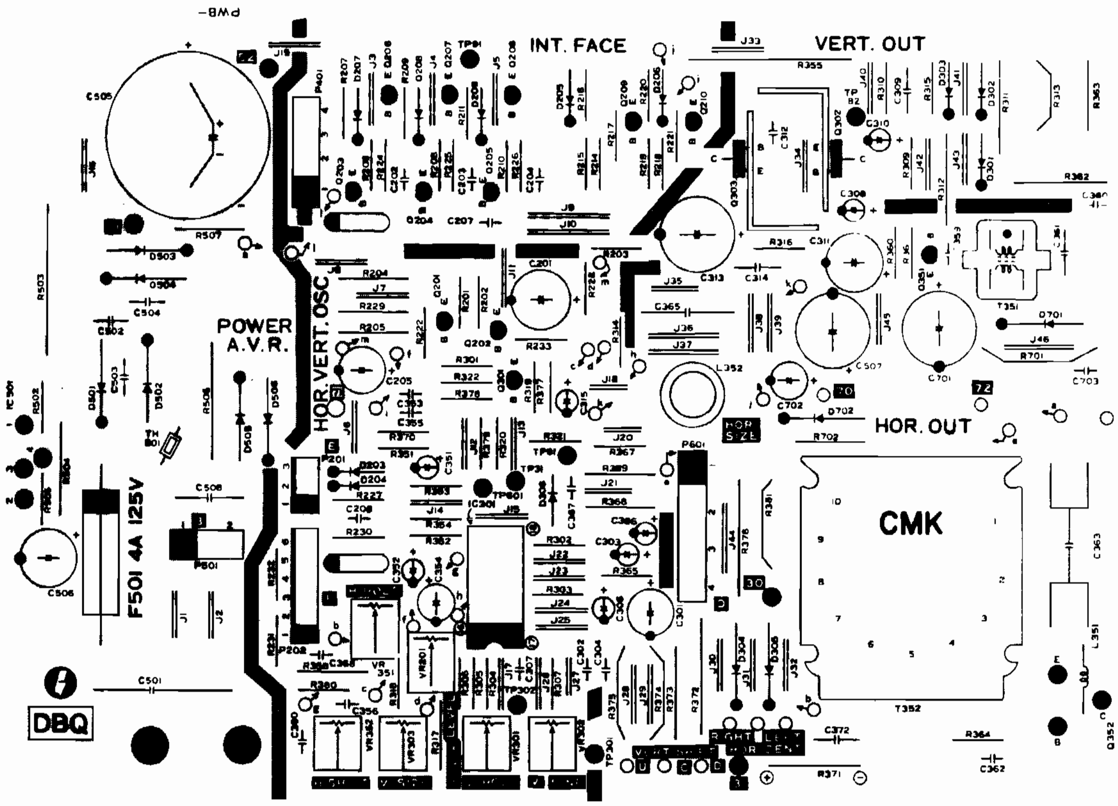
NECK BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		SEMICONDUCTORS	
1	482-0304	Transistor (NPN) 2SC2068LB	Q401
2	482-0304	Transistor (NPN) 2SC2068LB	Q402
3	482-0304	Transistor (NPN) 2SC2068LB	Q403

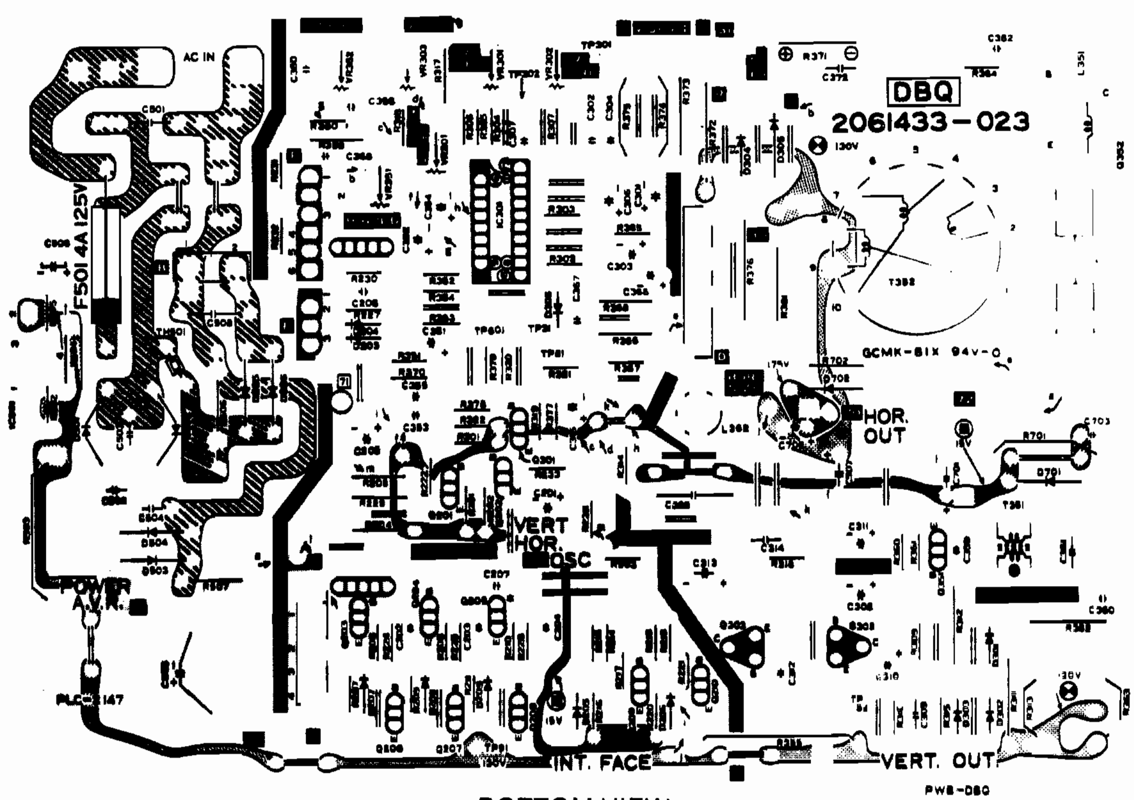
NECK BOARD

ITEM NO.	PART NO.	DESCRIPTION	REF. DESG.
		MISCELLANEOUS	
1		RECEP W Wire 4P-E	J401
2		Plug, PWB 3P-A	P402
3		Plug, Pin 1P-D	P403
4		Plug, PWB 4P-E	P701

P.C. BOARD LAYOUT

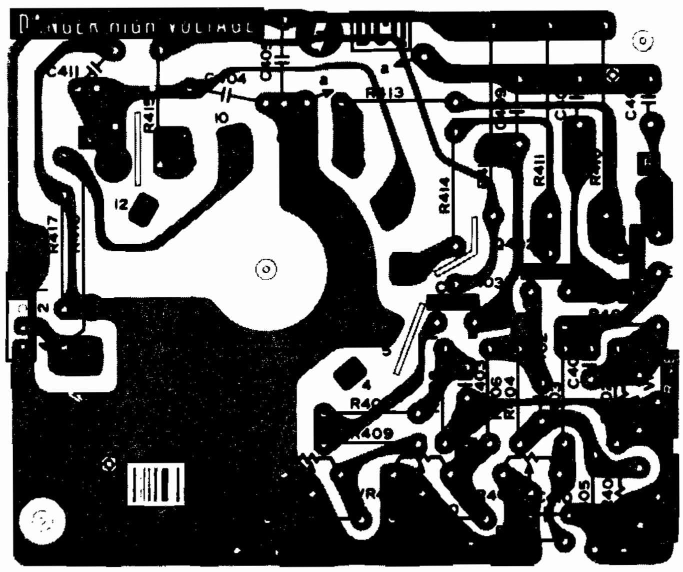


TOP VIEW

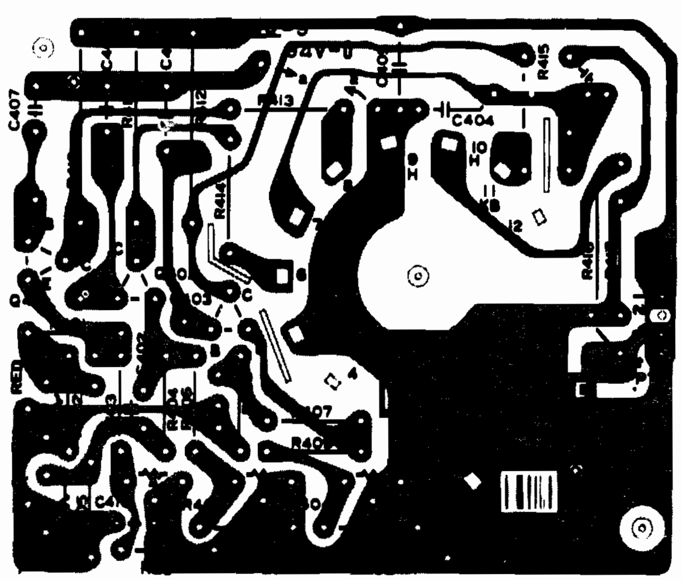


BOTTOM VIEW

P.C. BOARD LAYOUT

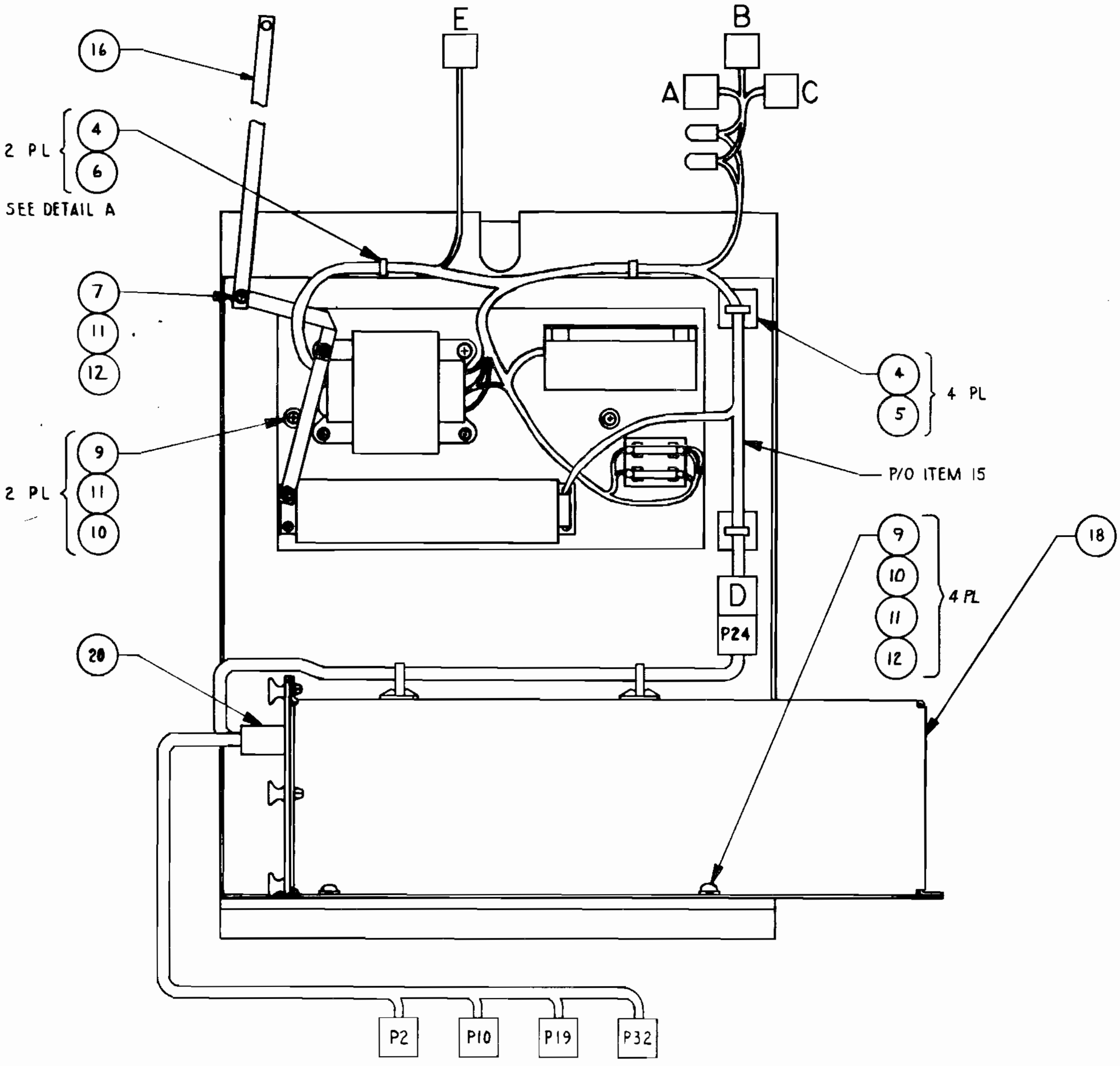


TOP VIEW

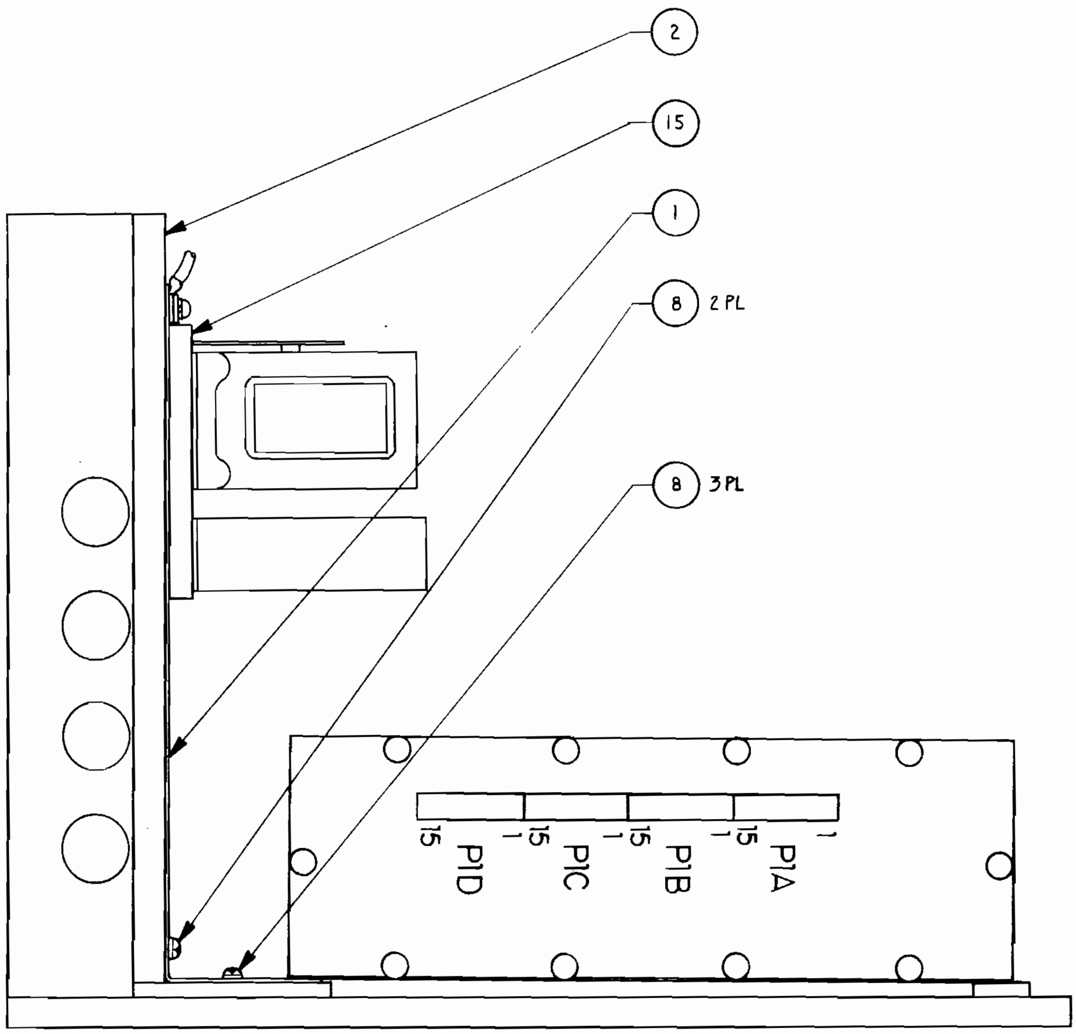


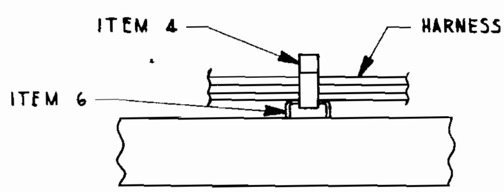
BOTTOM VIEW

ITEM NO.	PART NO.	QTY REQD.	DESCRIPTION
1	250-0606-00	1	Ground Plane
2	252-0209-01	1	Component Shelf
3			
4	280-0005-00	6	Cable Tie
5	280-0327-00	4	Base Tie Wrap
6	280-0475-00	2	Staple
7	281-0045-16	1	SCR #10-16 x 1.00 Pan HD Phil, Sht Mtl, Type AB
8	281-0045-12	5	SCR #10-16 x .750 Pan HD Phil, Sht Mtl, Type AB
9	281-0045-20	6	SCR #10-16 x 1.250 Pan HD Phil, Sht Mtl, Type AB
10	283-0060-25	6	Washer #10 Flat, Steel
11	283-0061-06	7	Washer #10 Lock, Split, Steel
12	283-0060-26	5	Washer #10 x .750, Flat, Steel
13			
14			
15	800-0367-02	1	Assy Power Supply
16	800-0423-01	1	Ground Strap
17			
18	800-3328-00	1	Assy Game Electronics
19			
20	800-3316-00	1	Assy Master Harness



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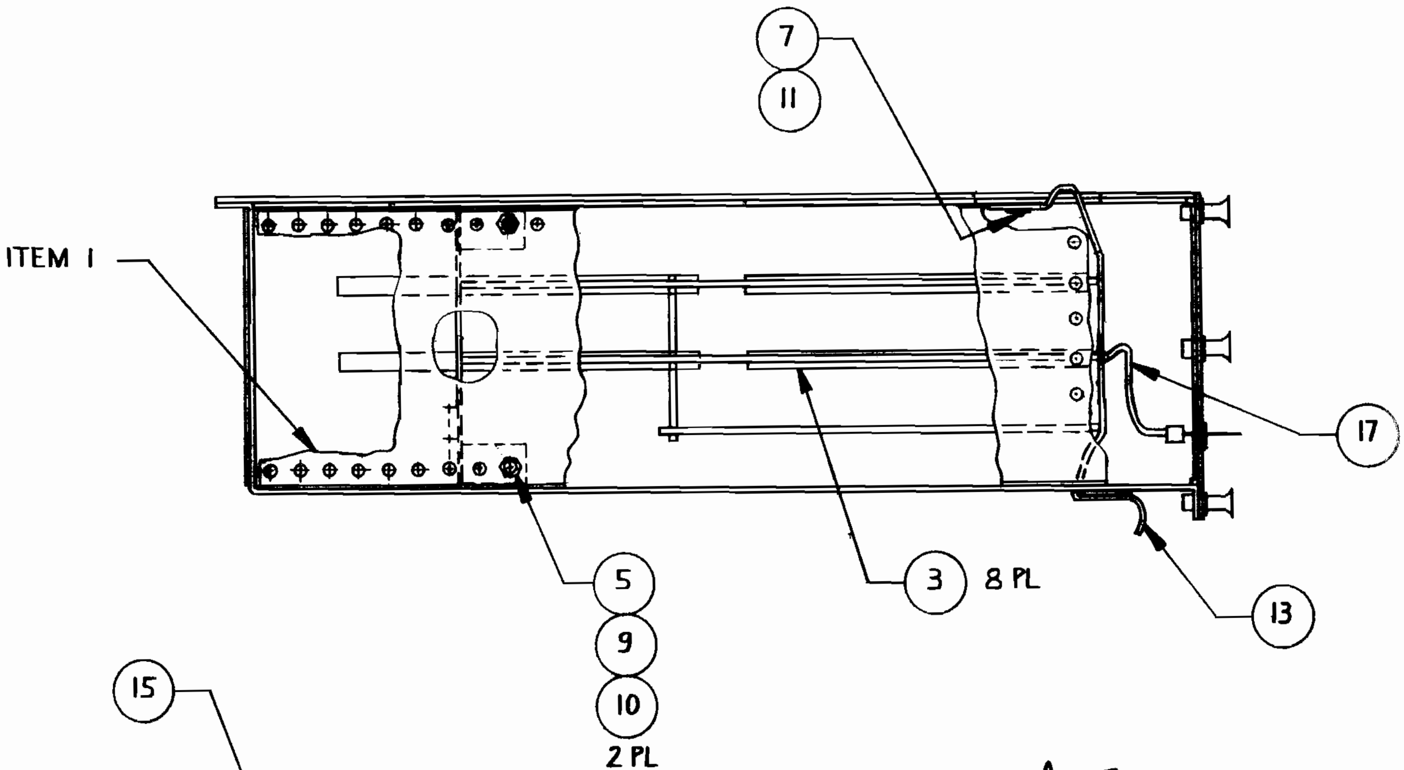


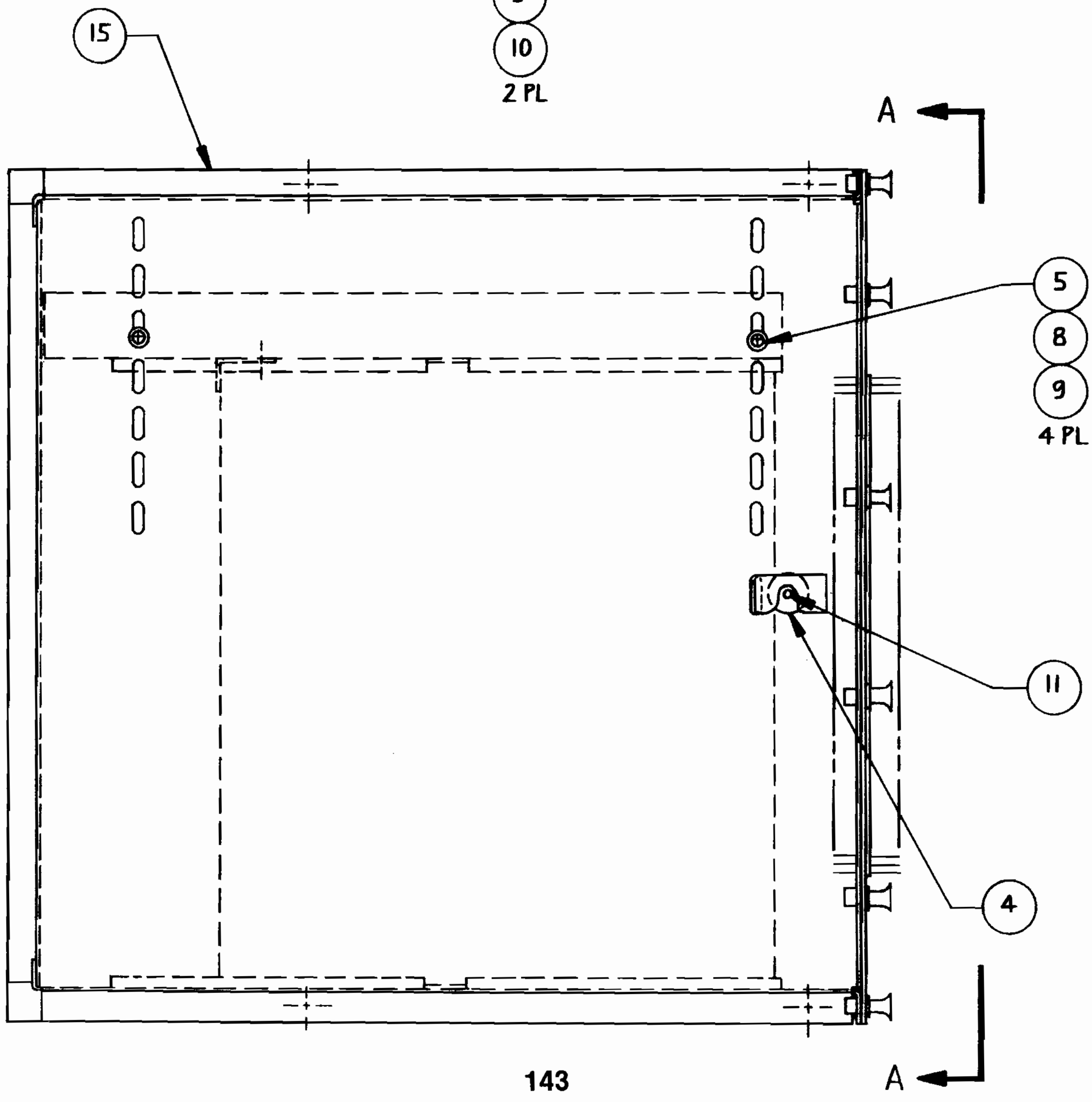


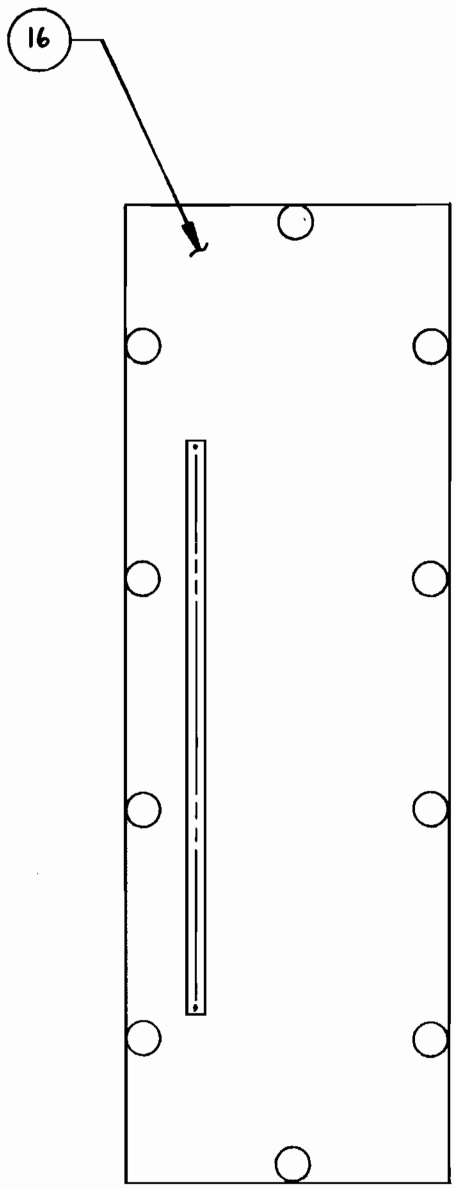
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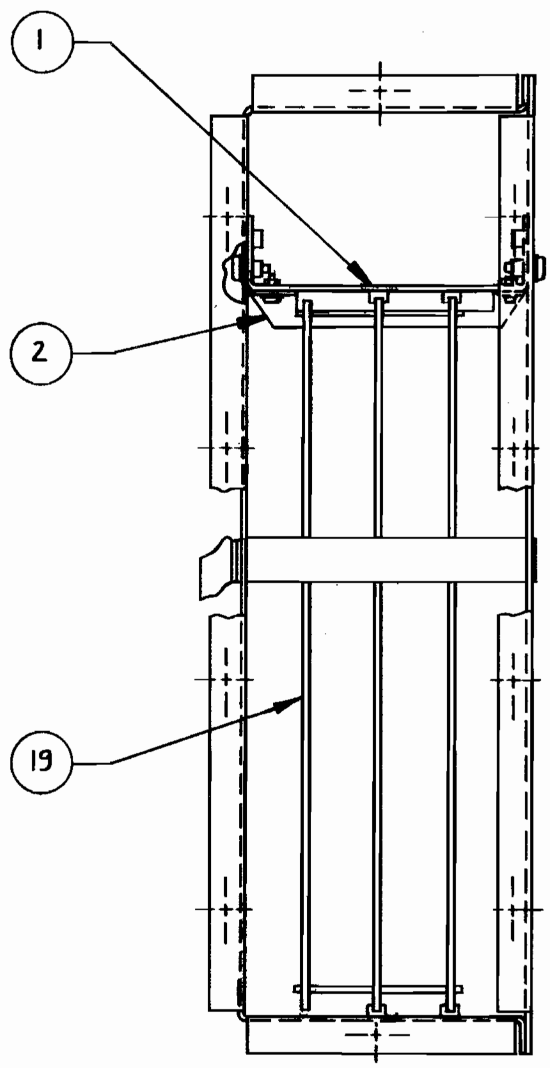
NO SCALE

ITEM NO.	PART NO.	QTY REQD.	DESCRIPTION
1	250-0602-00	1	PCB Adjustable Channel
2	250-0603-00	1	PCB Stop Bracket
3	253-0309-00	8	Card Guide, Deep Channel
4	280-0499-00	1	Velcro Disc
5	281-0004-05	6	SCR 8-32 x .312 PN HD Phil Mach
6			
7	283-0060-14	1	Washer #4 Flat, Stl
8	283-0060-22	4	Washer #8 Flat, Stl
9	283-0061-05	6	Washer #8 Lock, Split, Stl
10	283-0072-13	2	Nut 8-32 Hex, Mach THD
11	289-0003-16	2	Eyelet .121 Dia x .187 Lg
12			
13	320-0062-00	.75'	Strap Velcro Loop
14			
15	800-0421-00	1	Welded Assy, Elec. Housing
16	800-0422-00	1	Interface Bd Assy
17	800-3331-00	1	Interface Harn Assy
18			
19	834-5119-00	1	IC Board Assy


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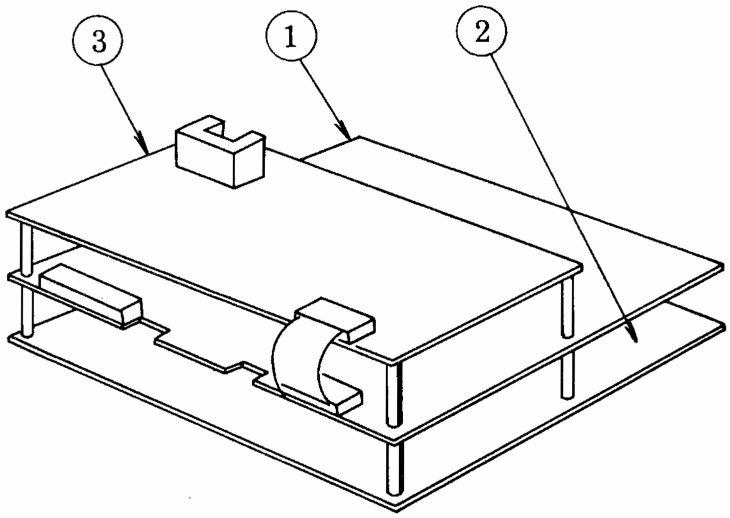


VIEW A-A
(VIEW SHOWN WITHOUT ITEM 16)

ASSY IC BOARD

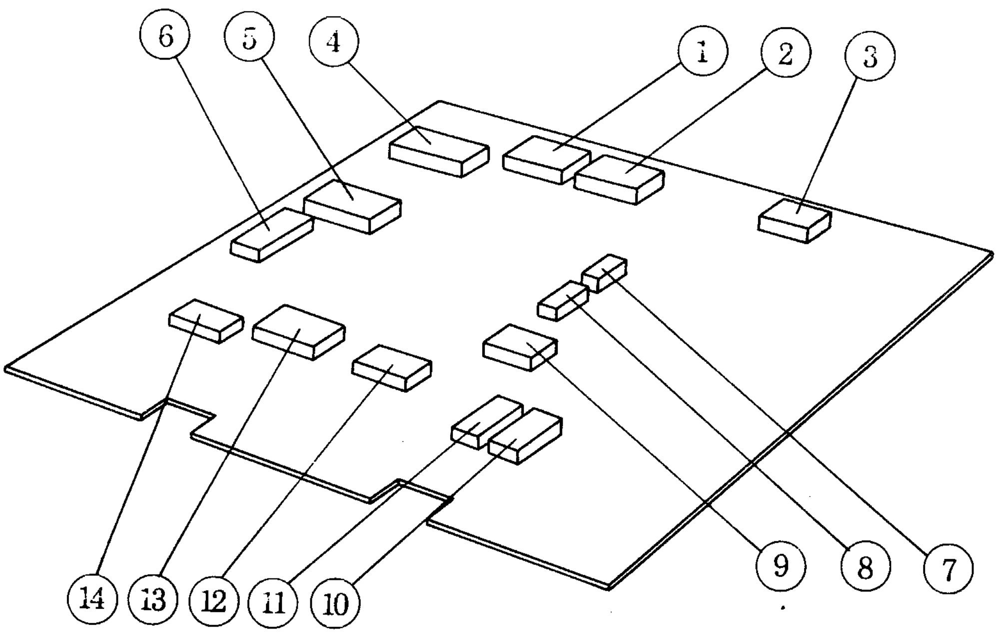
DRAWING NUMBER 834-5119

ITEM NO.	PART NO.	QTY REQD.	DESCRIPTION
1	834-5120	1	Assy CPU Board
2	834-5121	1	Assy PROM Board
3	834-5122	1	Assy Sound Board


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CPU BOARD ASSEMBLY DRAWING NUMBER 834-5120

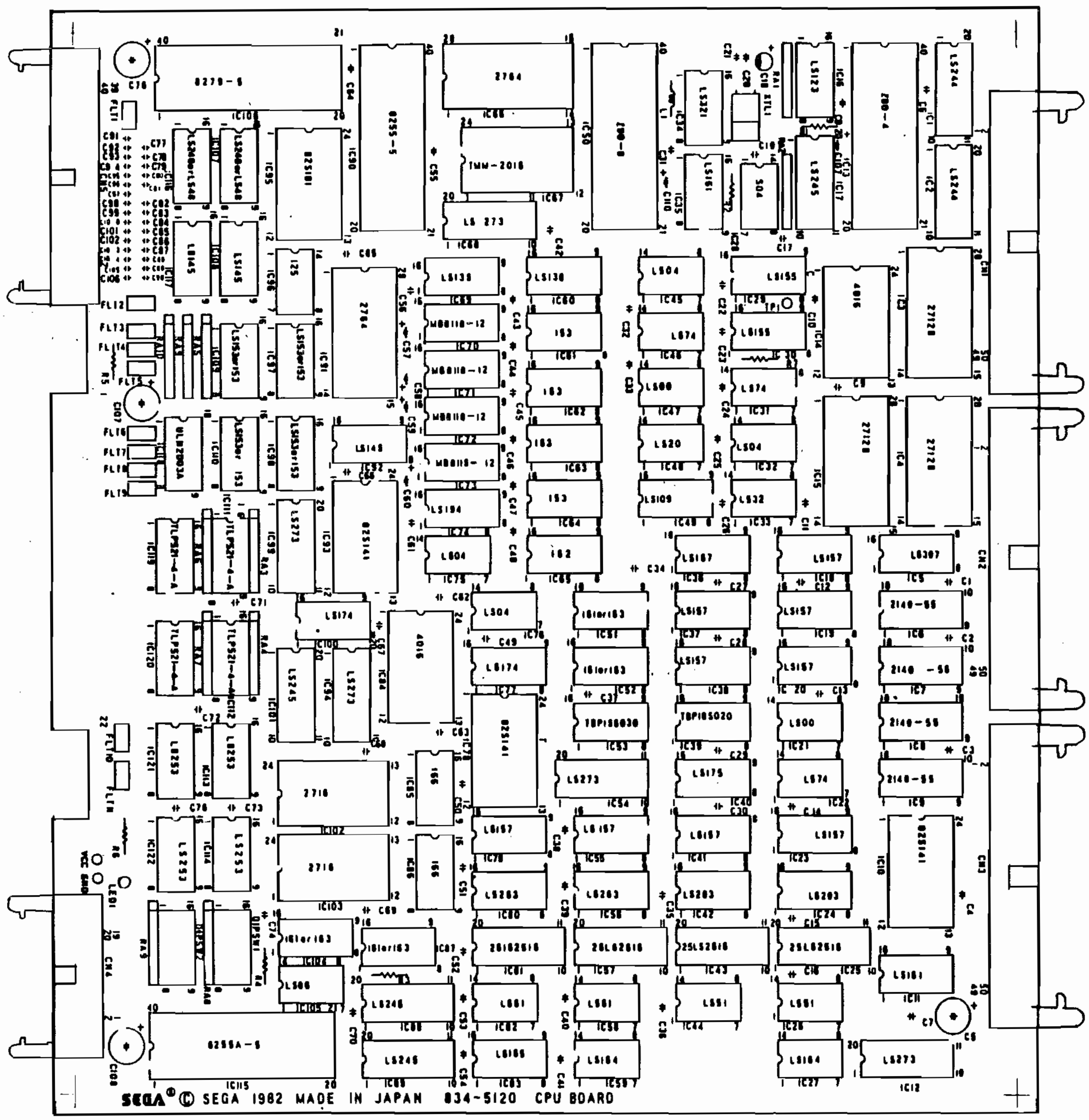
ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION	REF. DES.
1	316-5204	1	EPROM (Program 1)	IC3
2	316-5205	1	EPROM (Program 2)	IC4
3	316-5196	1	PROM (V-Rate)	IC10
4	315-0041	1	Z80A	IC13
5	315-0183	1	Z80B	IC50
6	316-5200	1	EPROM (Star)	IC66
7	316-5194	1	PROM	IC39
8	316-5195	1	PROM	IC53
9	316-5197	1	PROM (H-Rate)	IC78
10	316-5202	1	EPROM (Character 2)	IC103
11	316-5201	1	EPROM (Character 1)	IC102
12	316-5198	1	PROM (Color)	IC93
13	316-5203	1	EPROM (Back Screen)	IC91
14	316-5199	1	PROM (Color)	IC95


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ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	171-5011	1	Printed Board
2	314-0064	4	IC 74LS153
3	314-0018	3	IC 74LS00
4	314-0019	4	IC 74LS04
5	314-0046	1	IC 74S04
6	314-0060	1	IC 74LS20
7	314-0068	1	IC 74LS32
8	314-0106	4	IC 74LS51
9	314-0067	3	IC 74LS74
10	314-0070	1	IC 74LS86
11	314-0237	1	IC 74LS109
12	314-0080	1	IC 74LS123
13	314-0104	2	IC 74LS138
14	314-0144	2	IC 74LS145
15	314-0194	1	IC 74LS148
16	314-0071	1	IC 74LS151
17	314-0252	3	IC 74LS155
18	314-0076	10	IC 74LS157
19	314-0077	2	IC 74LS166
20	314-0127	2	IC 74LS164
21	314-0072	2	IC 74LS174
22	314-0073	1	IC 74LS175
23	314-0098	1	IC 74LS194
24	314-0055	2	IC 74LS244
25	314-0099	4	IC 74LS245
26	314-0173	2	IC 74LS48
27	314-0105	4	IC 74LS253
28	314-0100	5	IC 74LS273
29	314-0101	4	IC 74LS283
30	314-0297	1	IC 74LS321
31	314-0102	1	IC 74LS367

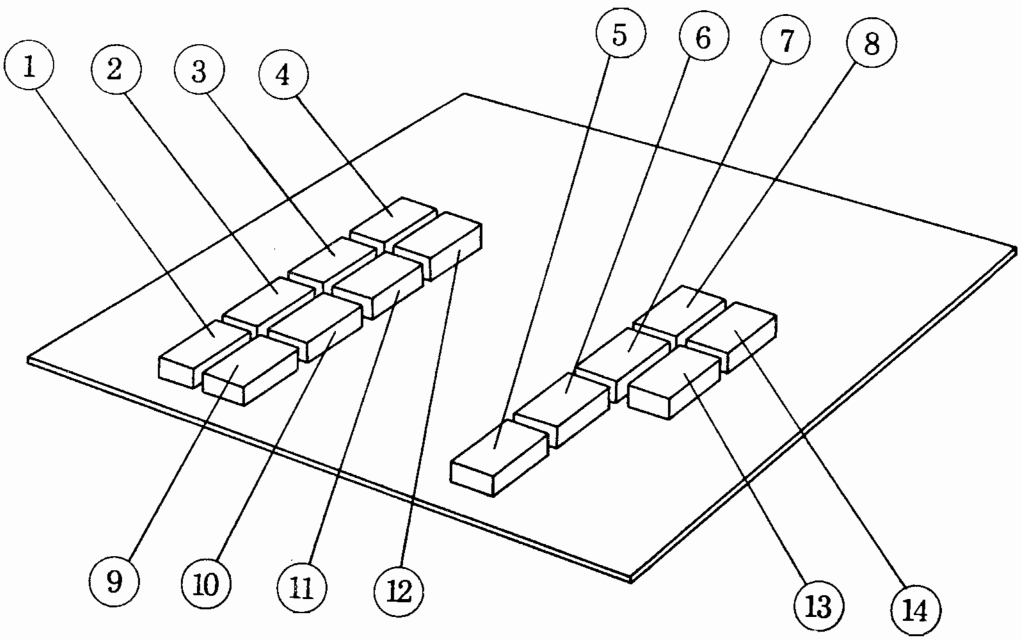
ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
32	314-0017	1	IC 74125
33	314-0048	5	IC 74153
34	314-0233	4	IC 74161
35	315-0041	1	IC Z80A
36	315-0183	1	IC Z80B
37	315-0101	1	IC 8279C-5
38	315-0152	2	IC 8255A-5
39	315-0194	3	IC TMM2016
40	315-0126	4	IC MB8148-55
41	315-0207	4	IC MB8264-20
42	315-0127	4	IC AM25LS2619
43	313-0086	1	IC TD62003
44	316-5194	1	IC TBP185030 PR-5194
45	316-5196	1	IC 825141 PR-5196
46	316-5197	1	IC 825141 PR-5197
47	316-5198	1	IC 825141 PR-5198
48	316-5199	1	IC 825181 PR-5199
49	316-5200	1	IC 2732A EPR-5200
50	316-5201	1	IC 2716 EPR-5201
51	316-5202	1	IC 2716 EPR-5202
52	316-5203	1	IC 2764 EPR-5203
53	316-5204	1	IC 27128 EPR-5204
54	316-5205	1	IC 27128 EPR-5205
55	316-5195	1	IC TBP18S030 PR-5195
56	314-0097	1	IC 74LS161
57	212-0115	3	Conn M50 Pin
58	212-0164	1	Conn M40 Pin
59	212-0129	1	Conn M20 Pin
60	213-0005	2	Skt 40 Pin, dual inln
61	213-0012	4	Skt 28 Pin, dual inln
62	213-0001	10	Skt 24 Pin, dual inln
63	213-0002	4	Skt 18 Pin, dual inln
64	213-0004	2	Skt 16 Pin, dual inln

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
65	180-0040	1	Peaking Coil, 56 MH
66	601-0731	4	Photo Coupler, TLP 521-4
67	230-0044	1	Crystal, 20.000 MHz
68	390-0100	1	LED TIL 220 red
69	510-0049	2	Switch, 8 pos, dip SPST
70	477-0005	4	Res Pack, 8 x 4.7K ohm 1/8W W/common
71	477-0039	3	Res Pack, 8 x 1K ohm 1/8W W/common
72	477-0008	2	Res Pack, 8 x 560 ohm 1/8W W/common
73	470-0220	1	Res, 22 ohm 1/4W 5%
74	470-0222	5	Res, 2.2K ohm 1/4W 5%
75	477-0049	1	Res Pack, 4 x 390 ohm 1/4W
76	477-0050	1	Res Pack, 4 x 47K ohm 1/4W
77	470-0331	1	Res, 330 ohm 1/4W 5%
78	601-5001	8	EMI Filter
79	601-5002	3	EMI Filter
80	151-0041	60	Cap CER 0.1 μF 25V
81	151-0005	1	Cap CEB 680 PF 50V
82	153-0066	6	Cap Tant, 10 μF 16V
83	150-0185	1	Cap E, 47 μF 16V T-Typ


SEGA © SEGA 1982 MADE IN JAPAN 834-5120 CPU BOARD

EPROM BOARD ASSEMBLY DRAWING NUMBER 834-5121

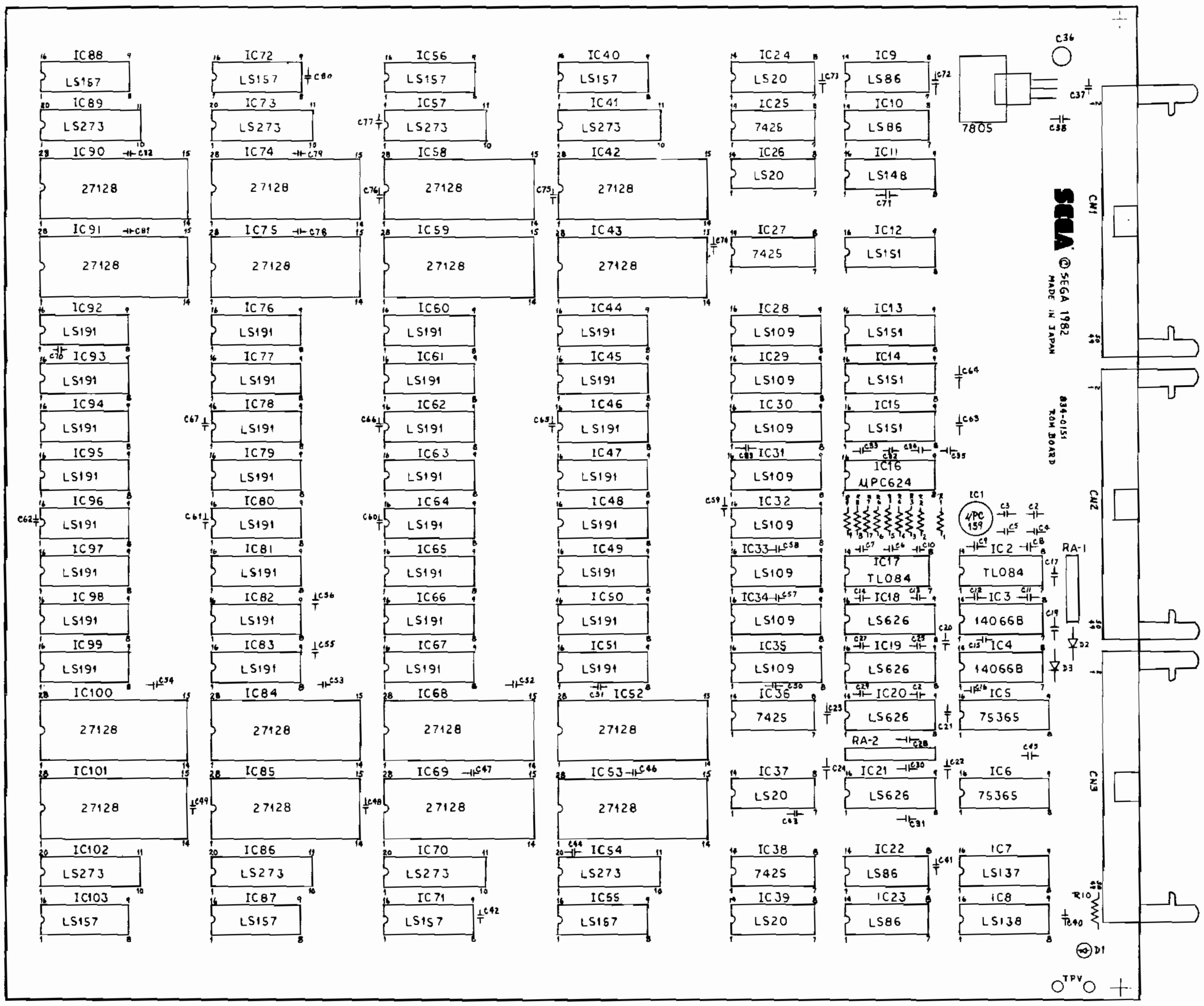
ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION	REF. DES.
1	316-5214	1	EPROM (Character)	IC90
2	316-5211	1	EPROM "	IC74
3	316-5208	1	EPROM "	IC58
4				IC42
5	316-5216	1	EPROM "	IC100
6	316-5213	1	EPROM "	IC84
7	316-5210	1	EPROM "	IC68
8	316-5207	1	EPROM "	IC52
9	316-5215	1	EPROM "	IC91
10	316-5212	1	EPROM "	IC75
11	316-5209	1	EPROM "	IC59
12	316-5206	1	EPROM "	IC43
13				IC69
14				IC53


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ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	171-5012	1	Printed Board
2	314-0060	4	IC 74LS20
3	314-0070	4	IC 74LS86
4	314-0237	8	IC 74LS109
5	314-0277	1	IC 74LS137
6	314-0104	1	IC 74LS138
7	314-0194	1	IC 74LS148
8	314-0071	4	IC 74LS151
9	314-0076	8	IC 74LS157
10	314-0074	32	IC 74LS191
11	314-0100	8	IC 74LS273
12	314-0257	4	IC 74LS626
13	314-0234	4	IC 7425
14	314-0132	2	IC 75365
15	315-0045	2	IC CD4066
16	315-0124	1	IC μPC624D
17	313-0039	2	IC TL084CN
18	313-0090	1	IC μPC159A
19	313-0092	1	IC μA7805UC
20	316-5206	1	IC 27128 EPR-5206
21	316-5207	1	IC 27128 EPR-5207
22	316-5208	1	IC 2764 EPR-5208
23	316-5209	1	IC 27128 EPR-5209
24	316-5210	1	IC 27128 EPR-5210
25	316-5211	1	IC 2764 EPR-5211
26	316-5212	1	IC 27128 EPR-5212
27	316-5213	1	IC 2764 EPR-5213
28	316-5214	1	IC 2764 EPR-5214
29	316-5215	1	IC 27128 EPR-5215
30	316-5216	1	IC 2764 EPR-5216
31	212-0115	3	Conn M50 Pin
32	213-0012	16	Skt 28 Pin, dual inln

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
33	213-0004	1	Skt 16 Pin, dual inln
34	481-0031	2	Diode, MA150
35	477-0046	2	Res Pack, 4 x 560 ohm 1/4W
36	470-0102	2	Res 1K Ohm 1/4W 5%
37	470-0122	1	Res 1.2K Ohm 1/4W 5%
38	470-0392	1	Res 3.9K Ohm 1/4W 5%
39	470-0222	2	Res 2.2K Ohm 1/4W 5%
40	470-0221	1	Res 220 Ohm 1/4W 5%
41	470-0821	1	Res 820 Ohm 1/4W 5%
42	470-0152	1	Res 1.5K Ohm 1/4W 5%
43	150-0059	1	Cap E 100 μF 10V U-Typ
44	153-0002	1	Cap Tant 1 μF 25V
45	155-0011	8	Cap Silvered Mica, 100 pf 500V 5%
46	155-0012	8	Cap Silvered Mica, 220 pf 500V 5%
47	151-0005	8	Cap Cer 680 pf 50V
48	151-0008	1	Cap Cer 0.001 μF 50V
49	151-0041	50	Cap Cer 0.1 μF 25V
50	151-0002	1	Cap Cer 100 pf 50V
51	530-0024	1	Heat Sink
52		1	M. Screw, pan head Phill ISO M3 x 10
53		1	Hex Nut, M3
54		1	Spring Washer, M3 (#2)

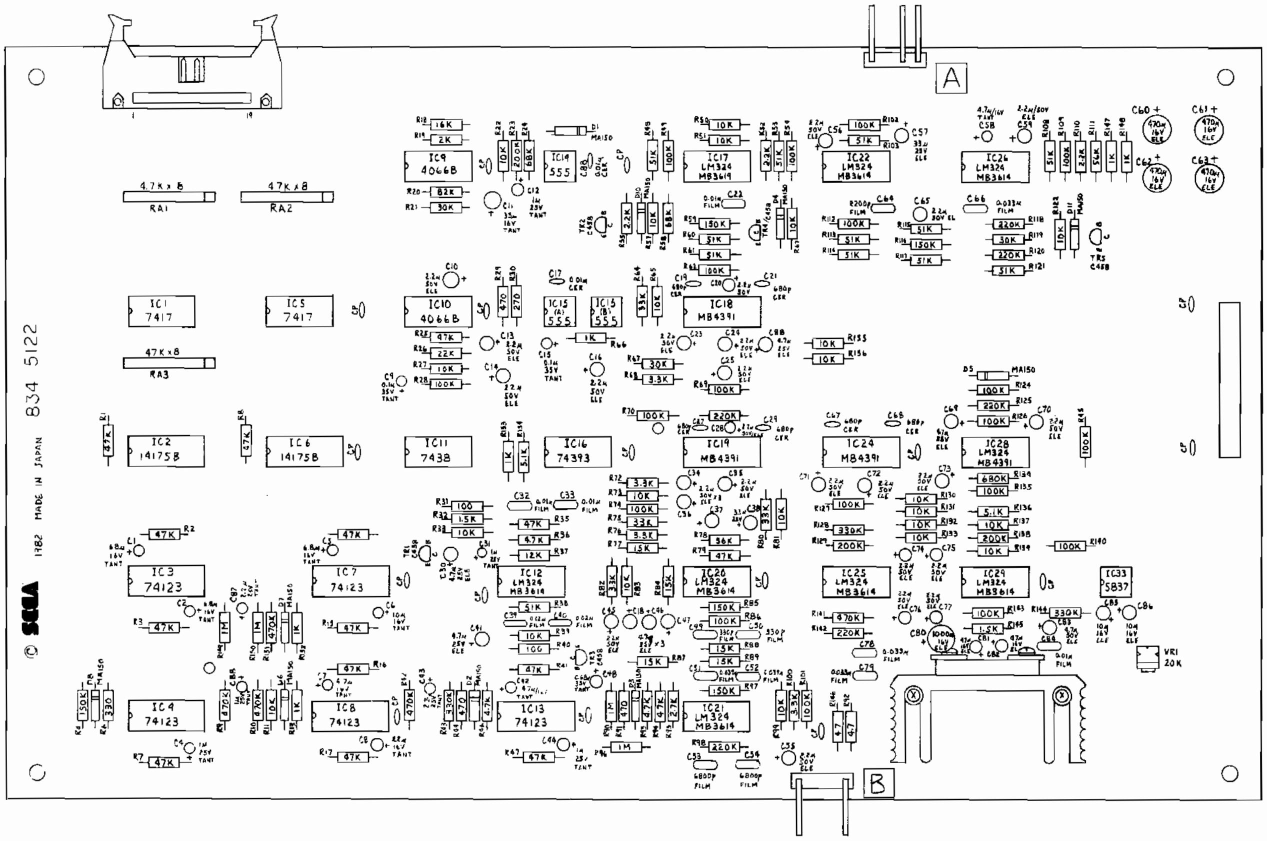
EPROM Board Assembly 834-5121



ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
1	171-5015	1	Printed Board
2	530-5002	1	Heat Sink
101	313-0097	1	IC LA4460
102	313-0034	9	IC LM324
103	313-0083	3	IC MB4391M
104	315-0035	1	IC MM5837
105	314-0001	3	IC NE555DIP
106	314-0051	2	IC 7417
107	314-0126	1	IC 7438
108	314-0016	5	IC 74123
109	314-0030	1	IC 74393
110	315-0045	2	IC CD4066
111	315-0161	2	IC MC14175B
112	482-0043	5	Transistor 2SC458C
113	481-0031	11	Diode MA150
114	477-0005	2	Res Pack, 8 x 47K Ohm 1/8W W/common
115	477-0024	1	Res Pack, 8 x 47K Ohm 1/8W W/common
116	470-04R7	2	Res 4.7 Ohm 1/4W 5%
117	470-0101	2	Res 100 Ohm 1/4W 5%
118	470-0271	1	Res 270 Ohm 1/4W 5%
119	470-0331	1	Res 330 Ohm 1/4W 5%
120	470-0471	4	Res 470 Ohm 1/4W 5%
121	470-0102	6	Res 1K Ohm 1/4W 5%
122	470-0152	2	Res 1.5K Ohm 1/4W 5%
123	470-0202	1	Res 2K Ohm 1/4W 5%
124	470-0222	3	Res 2.2K Ohm 1/4W 5%
125	470-0272	1	Res 2.7K Ohm 1/4W 5%
126	470-0332	5	Res 3.3K Ohm 1/4W 5%
127	470-0472	4	Res 4.7K Ohm 1/4W 5%
128	470-0512	2	Res 5.1K Ohm 1/4W 5%
129	470-0682	1	Res 6.8K Ohm 1/4W 5%
130	470-0103	23	Res 10K Ohm 1/4W 5%

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
131	470-0123	1	Res 12K Ohm 1/4W 5%
132	470-0153	5	Res 15K Ohm 1/4W 5%
133	470-0163	1	Res 16K Ohm 1/4W 5%
134	470-0223	1	Res 22K Ohm 1/4W 5%
135	470-0303	3	Res 30K Ohm 1/4W 5%
136	470-0333	4	Res 33K Ohm 1/4W 5%
137	470-0473	14	Res 47K Ohm 1/4W 5%
138	470-0513	12	Res 51K Ohm 1/4W 5%
139	470-0563	2	Res 56K Ohm 1/4W 5%
140	470-0683	1	Res 68K Ohm 1/4W 5%
141	470-0823	1	Res 82K Ohm 1/4W 5%
142	470-0104	20	Res 100K Ohm 1/4W 5%
143	470-0154	5	Res 150K Ohm 1/4W 5%
144	470-0204	3	Res 200K Ohm 1/4W 5%
145	470-0224	6	Res 220K Ohm 1/4W 5%
146	470-0334	3	Res 330K Ohm 1/4W 5%
147	470-0474	5	Res 470K Ohm 1/4W 5%
148	470-0684	1	Res 680K Ohm 1/4W 5%
149	470-0105	4	Res 1M Ohm 1/4W 5%
150	150-0014	27	Cap E 2.2 MF 25V U-typ
151	150-0007	8	Cap E 4.7 MF 16V U-typ
152	150-0017	2	Cap E 33 MF 25V U-typ
153	150-0065	2	Cap E 47 MF 16V U-typ
154	150-0160	7	Cap E 470 MF 16V U-typ
155	151-0005	6	Cap Cer 680 PF 50V
156	151-0011	1	Cap Cer 0.01 MF 50V
157	151-0041	5	Cap Cer 0.1 MF 50V
158	152-0004	1	Cap Film 0.0022 MF 50V
159	152-0009	2	Cap Film 0.0033 MF 25V
160	152-0078	2	Cap Film 0.0068 MF 50V 5%
161	152-0033	3	Cap Film 0.01 MF 50V
162	152-0079	2	Cap Film 0.022 MF 50V 5%

ITEM NO.	PART NO.	QTY. REQD.	DESCRIPTION
163	152-0035	3	Cap Film 0.033 MF 50V
164	152-0072	2	Cap E 0.039 MF 50V
165	150-0023	2	Cap E 10 MF 16V U-type
166	153-0016	2	Cap Tant 0.1 MF 35V
167	153-0038	1	Cap Tant 0.68 MF 16V
168	153-0002	5	Cap Tant 1 MF 25V
169	153-0003	2	Cap Tant 2.2 MF 25V
170	153-0045	3	Cap Tant 4.7 MF 16V
171	153-0030	4	Cap Tant 6.8 MF 16V
172	153-0066	1	Cap Tant 10 MF 16V
173	153-0026	5	Cap Tant 22 MF 16V
174	153-0050	1	Cap Tant 33 MF 16V
175	212-0129	1	Conn M 20 Pin
176	212-0101	2	Conn M 4 Pin RTA
177	220-5012	1	Vol Cont 20K Ohm 5M-F
201		2	M Screw, P.H. Phill., ISO, W/F & spring washer, M3 x 10
202	285-0002-30	2	M Screw, P.H. Phill., ISO, M3 x 30
203	287-0072-02	2	Hex Nut, ISO, M3
204	287-0060-02	2	F Washer, M3
205	280-0257-00	2	Spring Washer, M3 (#2)


834 5122
MADE IN JAPAN
SEGA
IC1 7417
IC5 7417
IC2 14175B
IC6 14175B
IC3 74123
IC7 74123
IC4 74123
IC8 74123
IC9 4066B
IC10 4066B
IC11 7438
IC12 LM324 MB3614
IC13 74123
IC14 555
IC15 555
IC16 74393
IC17 LM324 MB3614
IC18 MB4391
IC19 MB4391
IC21 LM324 MB3614
IC22 LM324 MB3614
IC24 MB4391
IC25 LM324 MB3614
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IC33 5837
RA1
RA2
RA3
VR1 20K
A
B

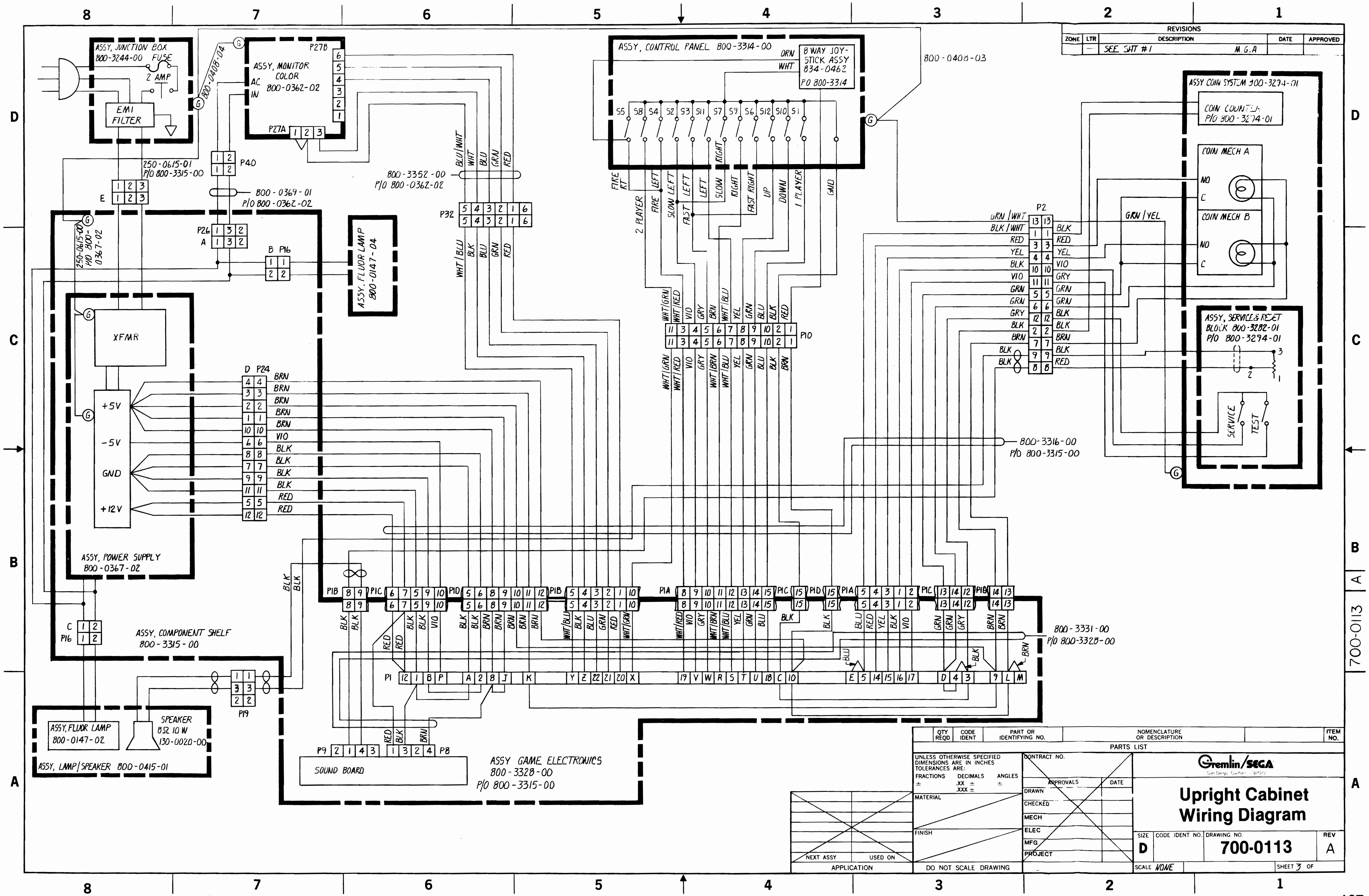
ITEM NO.	PART NO.	QTY. REQ'D	DESCRIPTION	REF DES
1	150-0009	1	Electrolytic Capacitor 1 µf 50V	C24
2	150-0013	1	Electrolytic Capacitor 100 µf 25V	C18
3	150-0148	3	Electrolytic Capacitor 1000 µf 10V	C11, C12, C13
4	150-0218	1	Electrolytic Capacitor 330 µf 200V	C5
5	150-0223	1	Electrolytic Capacitor	C19
6				
7				
8				
9	151-0117	2	Ceramic Capacitor 2200 pf AC 125V	C2, C3
10	151-0118	1	Ceramic Capacitor 1000 pf AC 125V	C4
11				
12				
13	152-0001	1	Polyester Capacitor 0.1 µf 100V	C22
14	152-0039	2	Polyester Capacitor 0.01 µf 100V	C8, C21
15	152-0152	1	Polyester Capacitor 0.01 µf 630V	C1
16	152-0153	1	Polyester Capacitor 3300 pf 630V	C6
17	152-0154	2	Polyester Capacitor 0.01 µf 630V	C16, C17
18	152-0155	2	Polyester Capacitor 1000 pf 100V	C20, C23
19	152-0156	1	Polyester Capacitor 0.047 µf 100V	C26

ITEM NO.	PART NO.	QTY. REQ'D	DESCRIPTION	REF DES
20	152-0157	1	Polyester Capacitor 2200 pf 630V	C7
21				
22				
23	180-0034	1	Filter Choke TLP6506P	L1
24	180-0035	1	Smoothing Choke ETB-35KH27	L2
25				
26	316-0124	1	Intergrated Circuit M51848P	IC1
27	316-0125	1	Intergrated Circuit T1431CP	IC2
28				
29	370-0005	1	Opto Isolator ON3110	PC1
30				
31	462-0024	1	Metal Oxide Resistor 10Ω 1W	R5
32				
33	470-0101	3	Carbon Film Resistor 100Ω 1/4W	R12, R14, R27
34	470-0102	2	Carbon Film Resistor 1KΩ 1/4W	R8, R30
35	470-0123	1	Carbon Film Resistor 12KΩ 1/4W	R17
36	470-0150	1	Carbon Film Resistor 15Ω 1/4W	R22
37	470-0152	1	Carbon Film Resistor 1.5KΩ 1/4W	R19
38	470-0181	1	Carbon Film Resistor 100Ω 1/4W	R25
39	470-0182	1	Carbon Film Resistor 1.8KΩ 1/4W	R11
40	470-0221	1	Carbon Film Resistor 220Ω 1/4W	R23

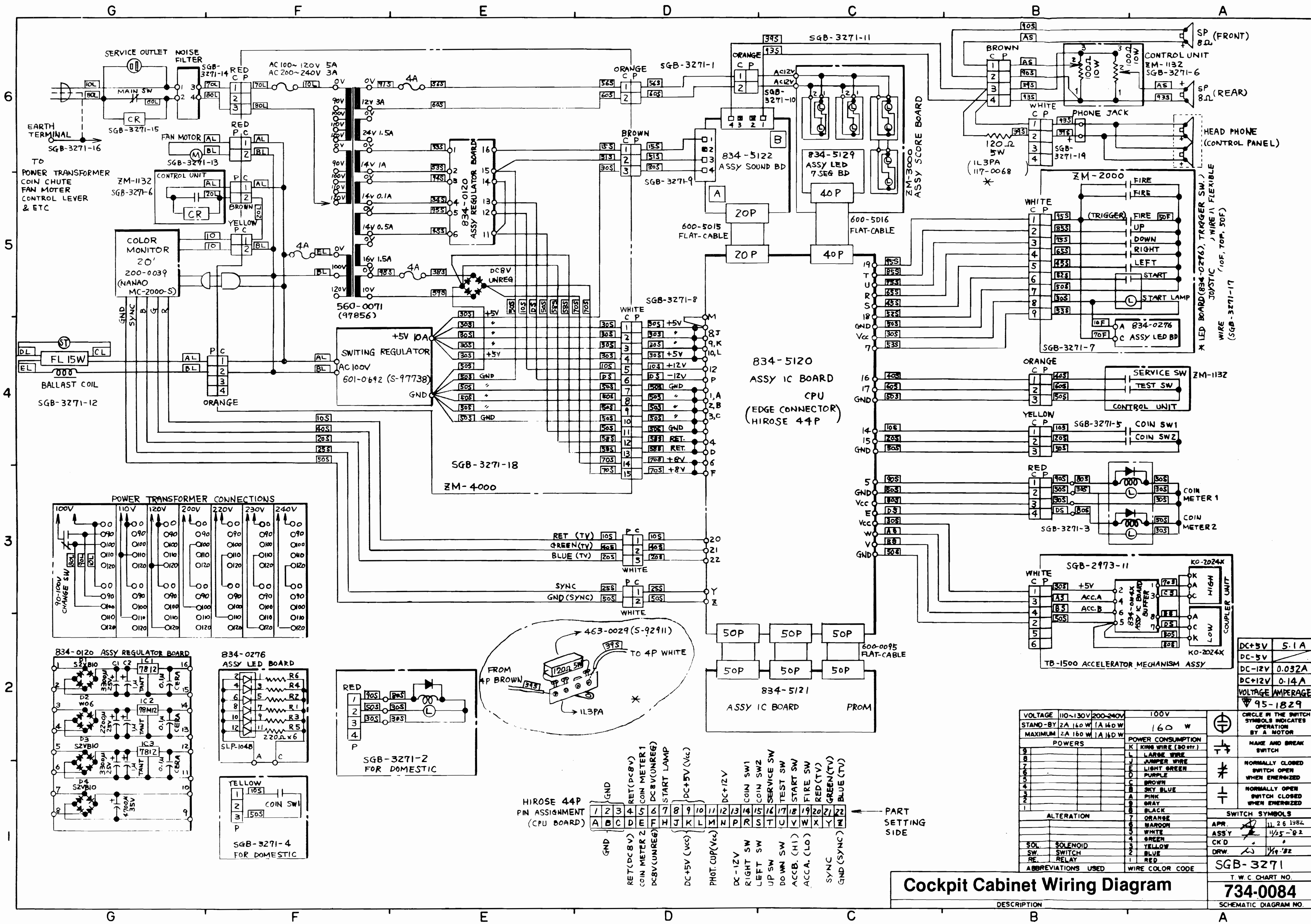
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41	470-0222	1	Carbon Film Resistor 2.2KΩ 1/4W	R10
42	470-0224	1	Carbon Film Resistor 220KΩ 1/4W	R16
43	470-0471	1	Carbon Film Resistor 470Ω 1/4W	R21
44	470-0681	1	Carbon Film Resistor 680Ω 1/4W	R29
45	470-0683	1	Carbon Film Resistor 68KΩ 1/4W	R18
46	470-0820	1	Carbon Film Resistor 82Ω 1/4W	R20
47	470-0821	1	Carbon Film Resistor 820Ω 1/4W	R15
48	470-0822	1	Carbon Film Resistor 8.2KΩ 1/4W	R13
49	470-0151	1	Carbon Film Resistor 150Ω 1/4W	R24
50	470-0561	1	Carbon Film Resistor 560Ω 1/4W	R9
51	472-0330	1	Metal Oxide Resistor 33Ω 2W	R7
52	472-0393	1	Metal Oxide Resistor 33KΩ 1W	R4
53	472-0682	2	Metal Oxide Resistor 6.8KΩ 2W	R2, R3
54	472-0R47	1	Metal Oxide Resistor 0.47Ω 2W	R26
55				
56	473-06R8	1	Wirewound Resistor 6.8Ω 5W	R1
57				

ITEM NO.	PART NO.	QTY. REQ'D	DESCRIPTION	REF DES
58	478-0008	1	Thermistor	TH1
59	478-0009	1	Thermistor	TH2
60				
61	481-0236	1	Diode S4VB40	D1
62	481-0237	2	Diode ERC2506E	D2, D5
63	481-0238	2	Diode ERB43-06K	D3, D6
64	481-0239	1	Diode ESAC83-004	D4
65	481-0240	2	Diode MA161LF5	D7, D8
66	481-0241	1	Zener Diode RD5.6E-B2	ZD1
67				
68	482-0057	1	Transistor 2SC1384	Q2
69	482-0076	1	Transistor 2SA564A	Q6
70	482-0177	1	Transistor 2SC1685	Q4
71	482-0294	1	Transistor 2SC2739HD	Q1
72	482-0295	1	Transistor 2SA886	Q3
73	482-0296	1	Transistor 2SD889	Q5
74	514-0001	1	Fuse 2A Slow	F1
75	560-0103	1	Transformer ETB-35KA38	T1

Schematics



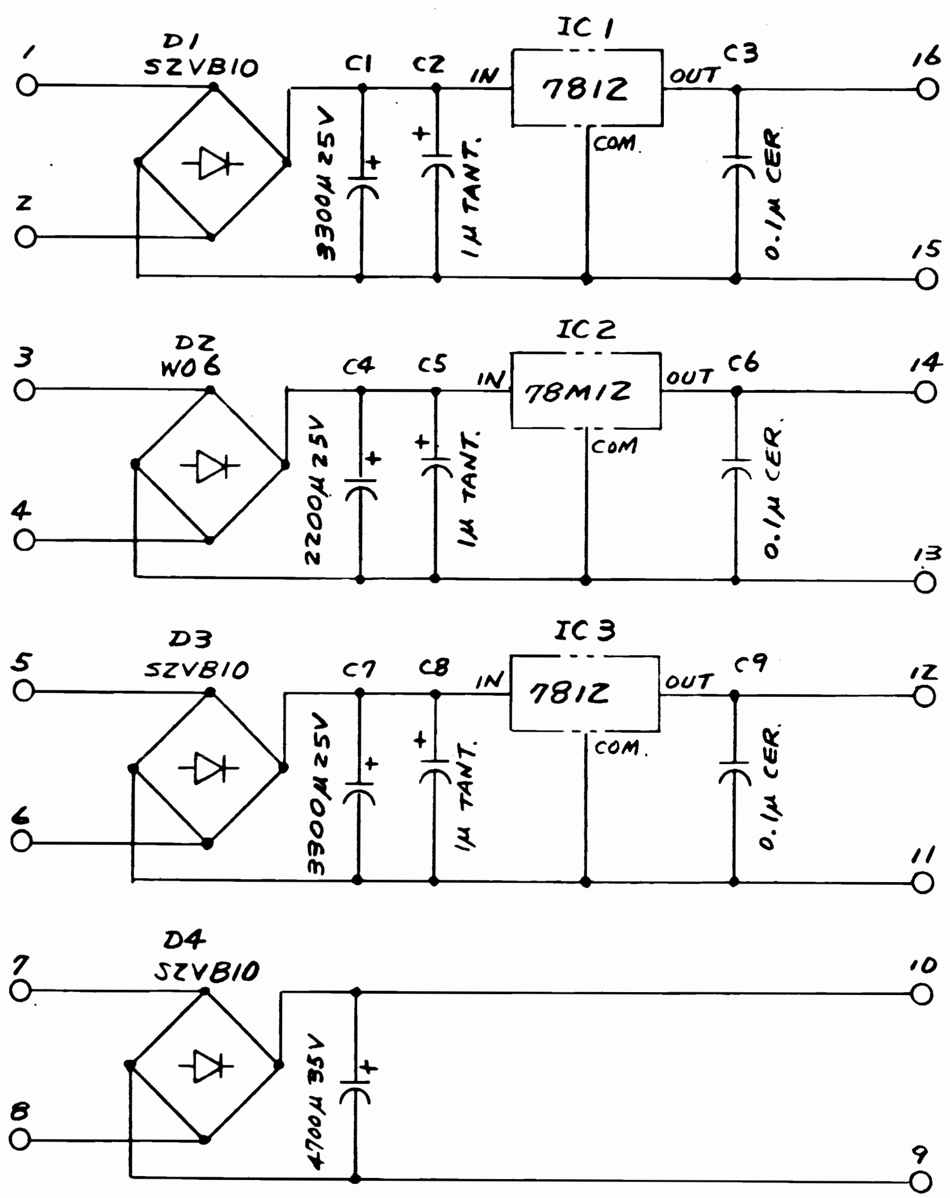
ASSY, JUNCTION BOX 800-3244-00
FUSE 2 AMP
EMI FILTER
ASSY, MONITOR COLOR 800-0362-02
AC IN
P27B
P27A
800-0408-04
250-0615-01 P/O 800-3315-00
P40
800-0369-01 P/O 800-0362-02
800-3352-00 P/O 800-0362-02
P32
P26 A
B P16
ASSY, FLUOR LAMP 800-0147-04
250-0615-00 P/O 800-0367-02
XFMR
+5V
-5V
GND
+12V
D P24
ASSY, POWER SUPPLY 800-0367-02
C P16
ASSY, COMPONENT SHELF 800-3315-00
P19
ASSY, FLUOR LAMP 800-0147-02
SPEAKER 8Ω 10 W 130-0020-00
ASSY, LAMP/SPEAKER 800-0415-01
SOUND BOARD
P9
P8
ASSY GAME ELECTRONICS 800-3328-00 P/O 800-3315-00
P1
P1A
P1B
P1C
P1D
800-3331-00 P/O 800-3328-00
ASSY, CONTROL PANEL 800-3314-00
8 WAY JOY-STICK ASSY 834-0462 P/O 800-3314
S5 S8 S4 S2 S3 S11 S7 S9 S6 S12 S10 S1
FIRE RT
2 PLAYER
FIRE
LEFT
SLOW LEFT
FAST LEFT
LEFT
SLOW
RIGHT
FAST RIGHT
UP
DOWN
1 PLAYER
GND
P10
800-0408-03
P2
800-3316-00 P/O 800-3315-00
ASSY COIN SYSTEM 800-3294-01
COIN COUNTER P/O 800-3294-01
COIN MECH A
COIN MECH B
NO
C
ASSY, SERVICE & RESET BLOCK 800-3282-01 P/O 800-3294-01
SERVICE
TEST
REVISIONS
ZONE LTR DESCRIPTION DATE APPROVED
— SEE SHT #1 M.G.A
QTY REQD | CODE IDENT | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO.
APPROVALS DATE
DRAWN
CHECKED
MECH
ELEC
MFG
PROJECT
Gremlin/SEGA
Upright Cabinet Wiring Diagram
SIZE D
CODE IDENT NO.
DRAWING NO. 700-0113
REV A
SCALE NONE
SHEET 3 OF
700-0113 A



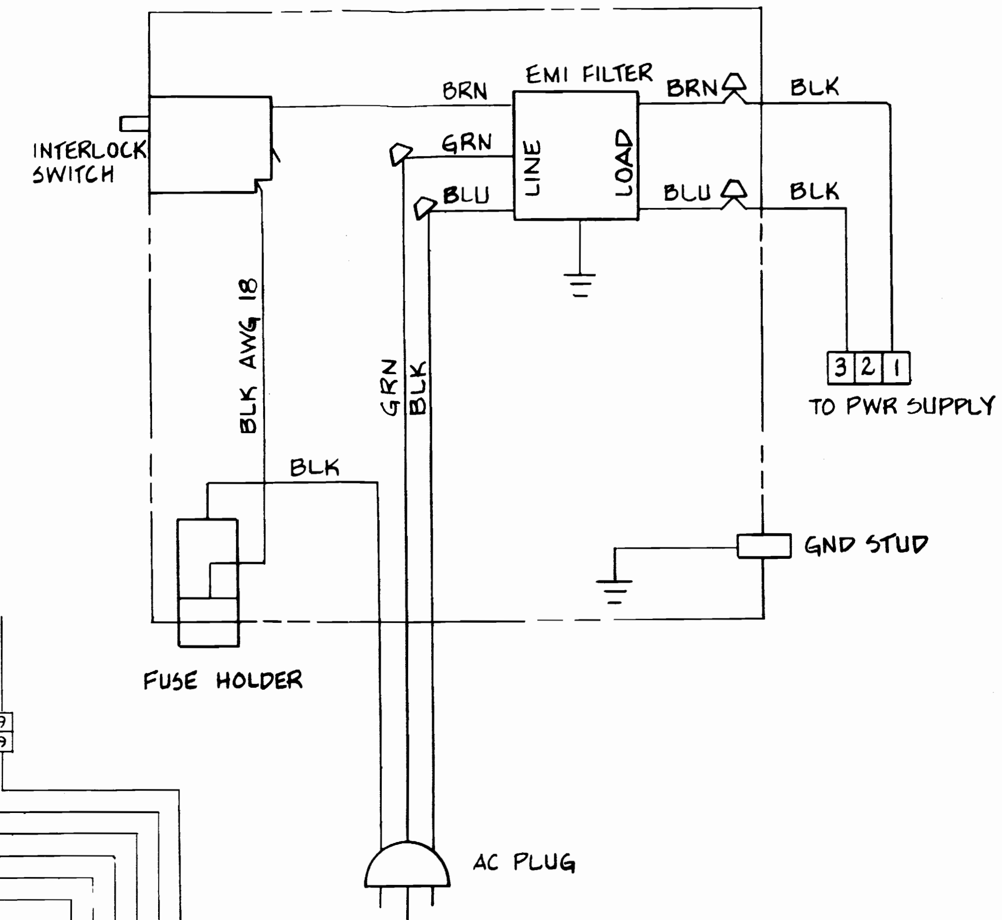
Cockpit Cabinet Wiring Diagram
734-0084
SCHEMATIC DIAGRAM NO.
DESCRIPTION
SGB-3271
T.W.C. CHART NO.
POWER TRANSFORMER CONNECTIONS
834-0120 ASSY REGULATOR BOARD
834-0276 ASSY LED BOARD
SGB-3271-2 FOR DOMESTIC
SGB-3271-4 FOR DOMESTIC
HIROSE 44P PIN ASSIGNMENT (CPU BOARD)
PART SETTING SIDE
834-5120 ASSY IC BOARD CPU (EDGE CONNECTOR HIROSE 44P)
834-5121 ASSY IC BOARD PROM
834-5122 ASSY SOUND BD
834-5129 ASSY LED 7 SEG BD
ZM-3000 ASSY SCORE BOARD
600-5015 FLAT-CABLE
600-5016 FLAT-CABLE
600-0095 FLAT-CABLE
SWITING REGULATOR AC 100V 601-0692 (S-97738)
560-0071 (97856)
COLOR MONITOR 20' 200-0039 (NANAO MC-2000-S)
SERVICE OUTLET
NOISE FILTER
MAIN SW
EARTH TERMINAL
FAN MOTOR
CONTROL UNIT
BALLAST COIL
SP 8Ω (FRONT)
SP 8Ω (REAR)
HEAD PHONE (CONTROL PANEL)
PHONE JACK
CONTROL UNIT ZM-1132 SGB-3271-6
ZM-2000
LED BOARD (834-0276), TRIGGER SW., JOYSTIC, WIRE 1 FLEXIBLE
834-0276 ASSY LED BD
SERVICE SW
TEST SW
COIN SW1
COIN SW2
COIN METER 1
COIN METER 2
TB-1500 ACCELERATOR MECHANISM ASSY
SGB-2973-11
ZM-4000
463-0029 (S-92911)
TO 4P WHITE
FROM 4P BROWN
IL3PA
DC+5V 5.1A
DC-5V
DC-12V 0.032A
DC+12V 0.14A
VOLTAGE AMPERAGE
95-1829
VOLTAGE 110~130V 200~240V 100V
STAND-BY 2A 160W 1A 160W 160 W
MAXIMUM 2A 160W 1A 160W
POWER CONSUMPTION
POWERS
ALTERATION
SOL. SOLENOID
SW. SWITCH
RE. RELAY
ABBREVIATIONS USED
WIRE COLOR CODE
SWITCH SYMBOLS
APR. 11.26 1982
ASS'Y 11/25-'82
CK'D
DRW. 11/19-'82

168

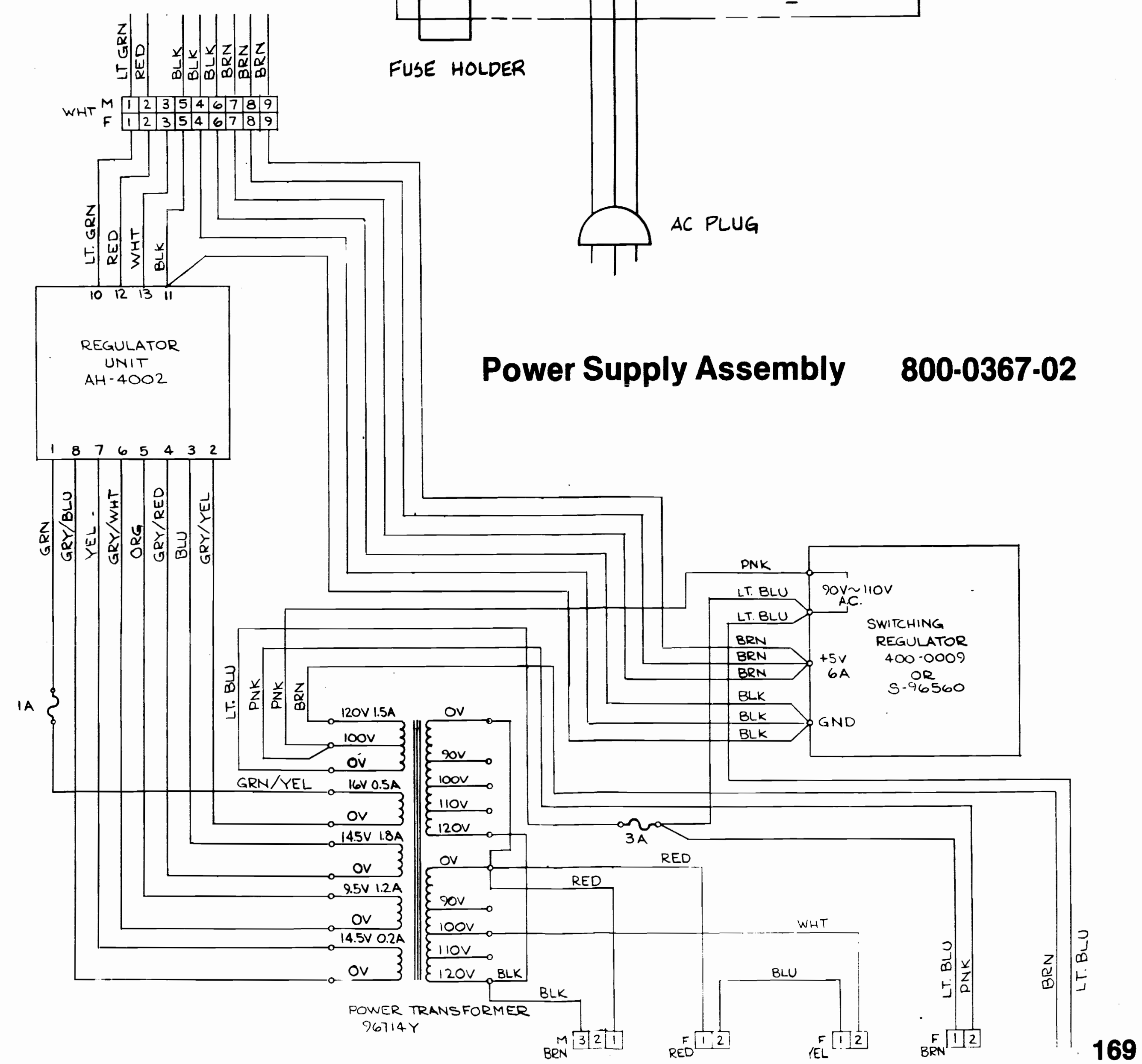
Regulator Board Assembly 834-0120

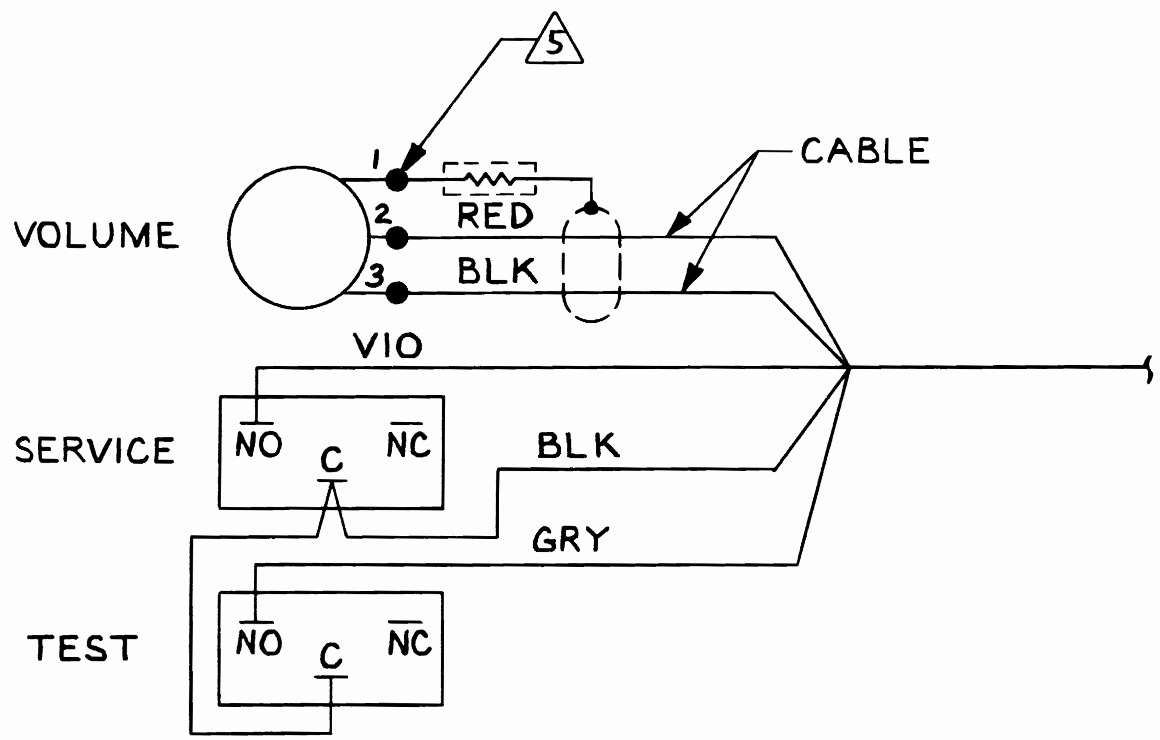


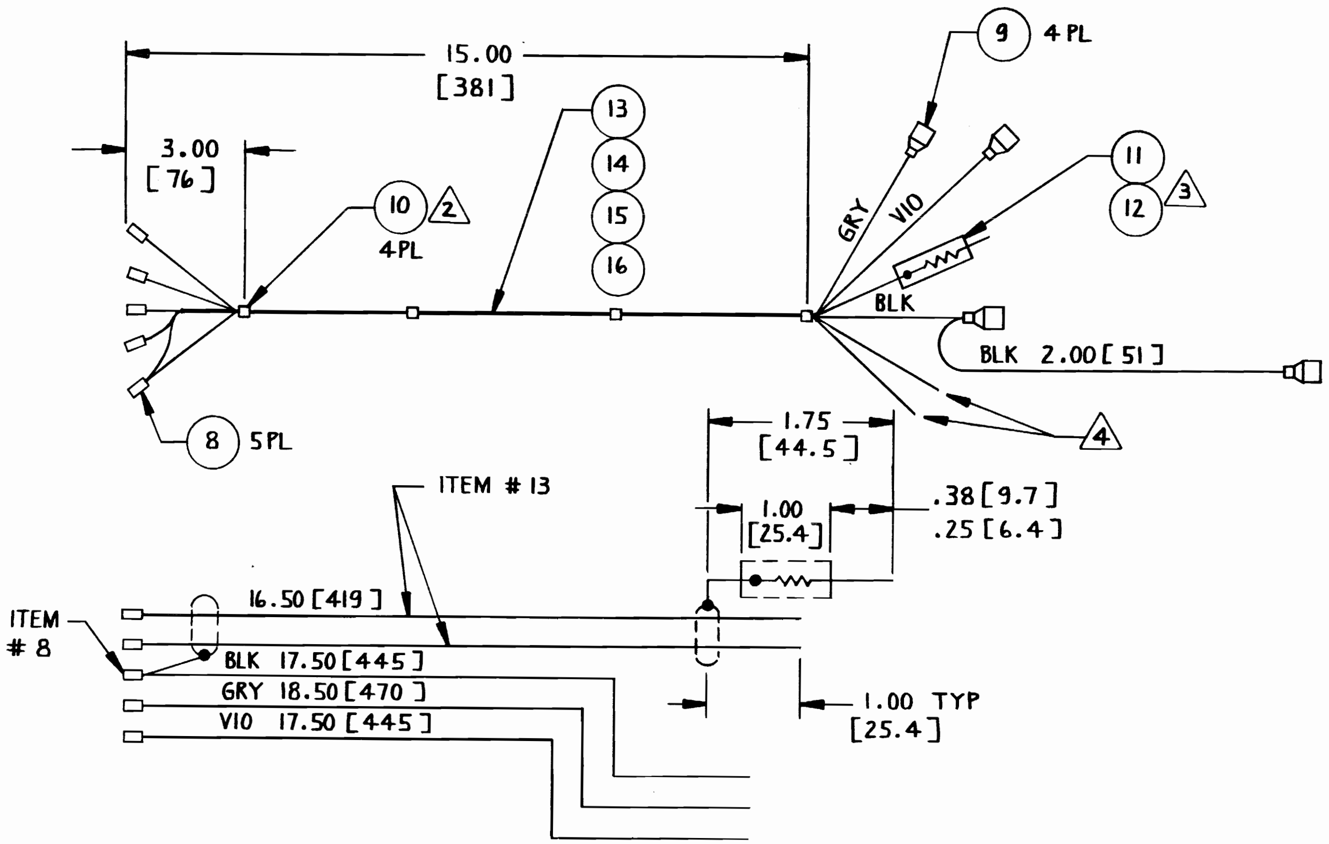
AC Junction BoxAssembly 800-3244



Power Supply Assembly 800-0367-02

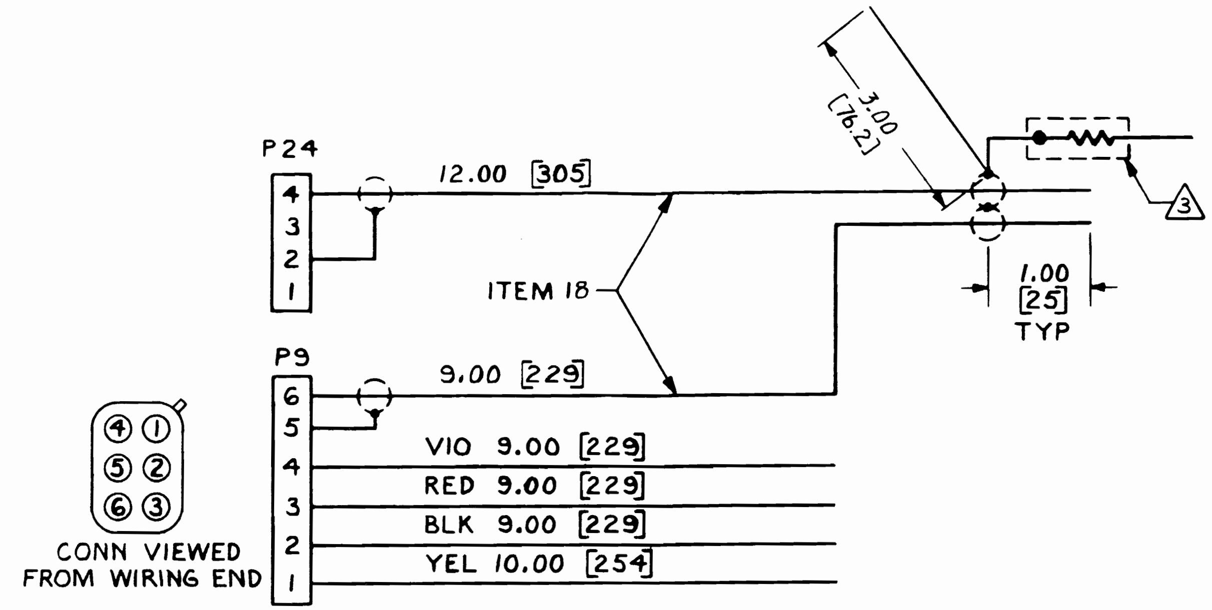




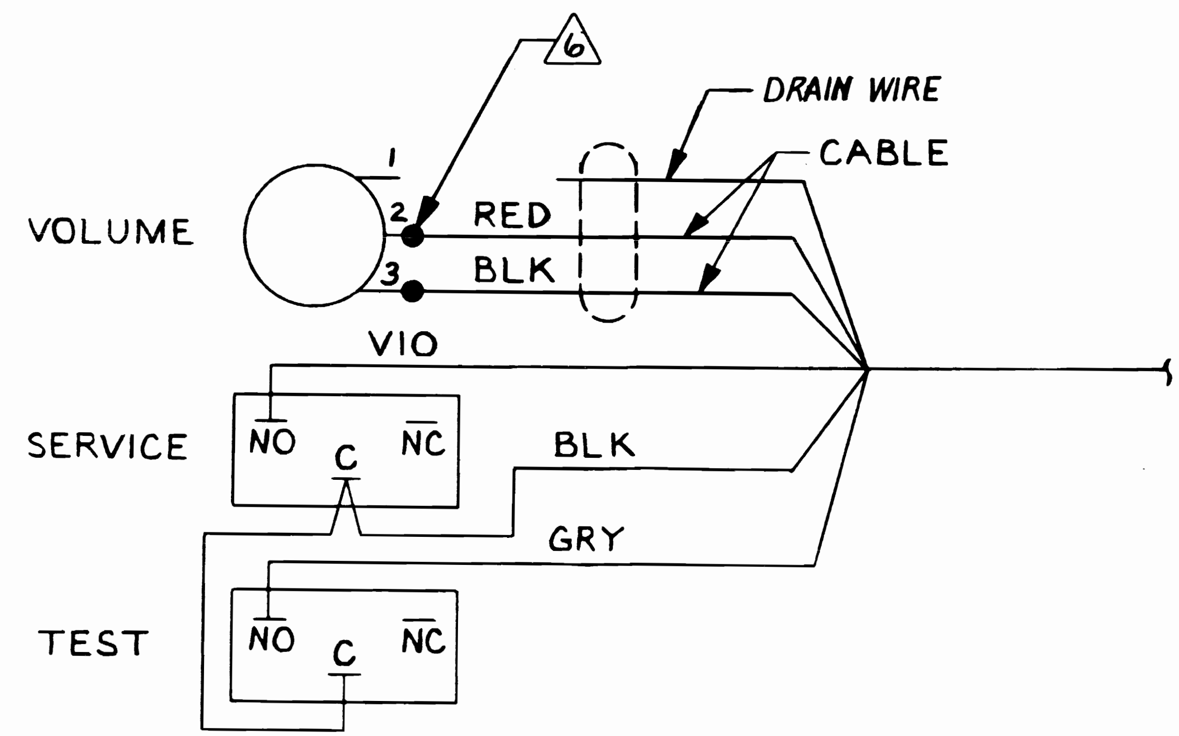


-00 Assembly

Volume Control Block Assembly 800-3282

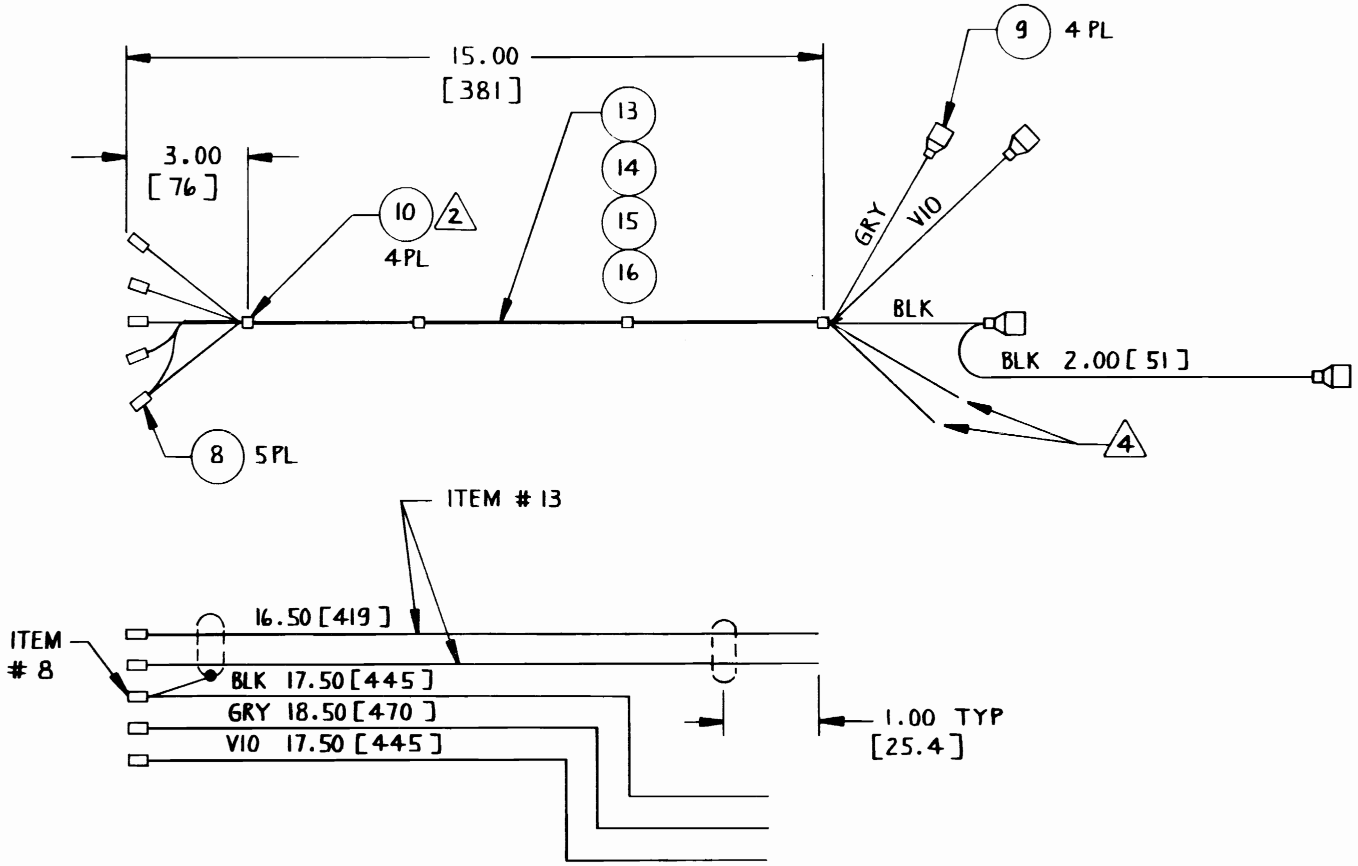


-00 Assembly

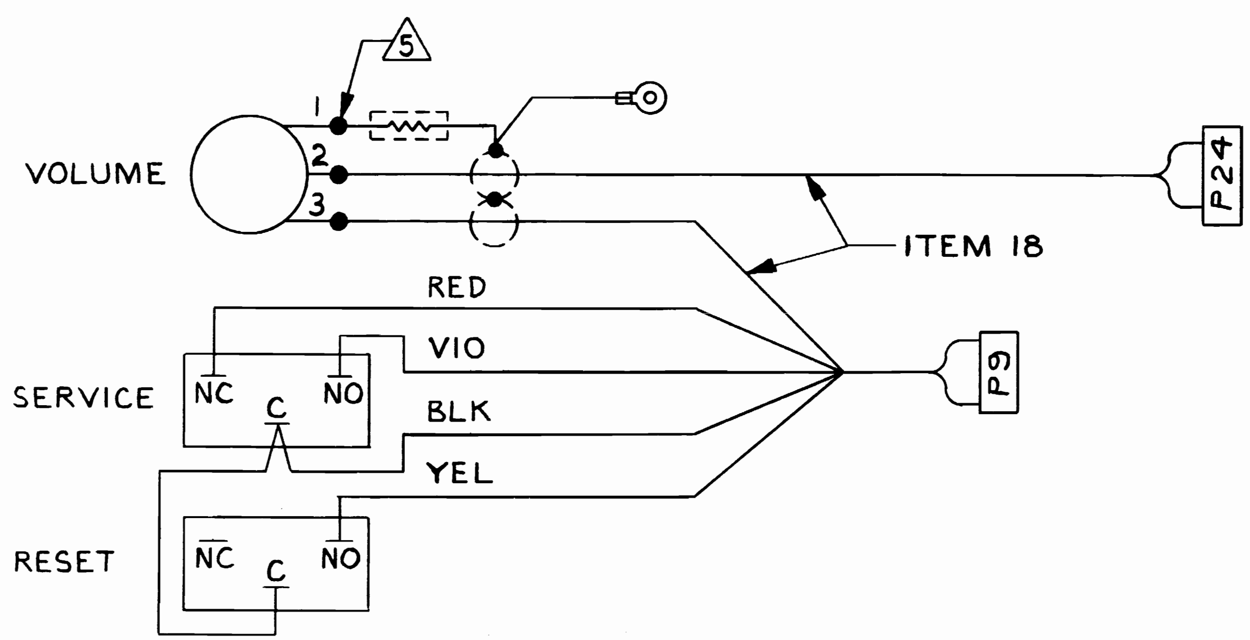


-01 Assembly

Volume Control Block Assembly 800-3282

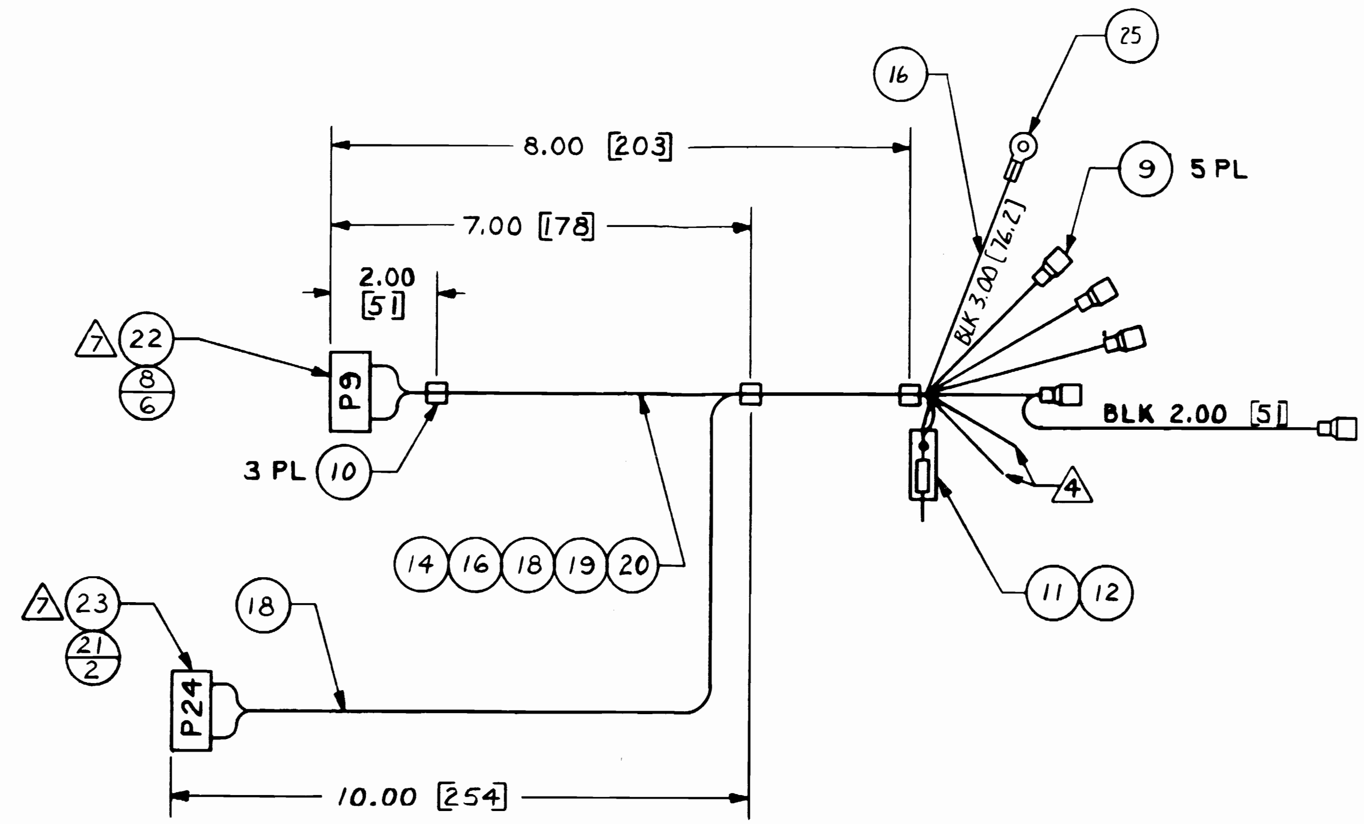


-01 Assembly



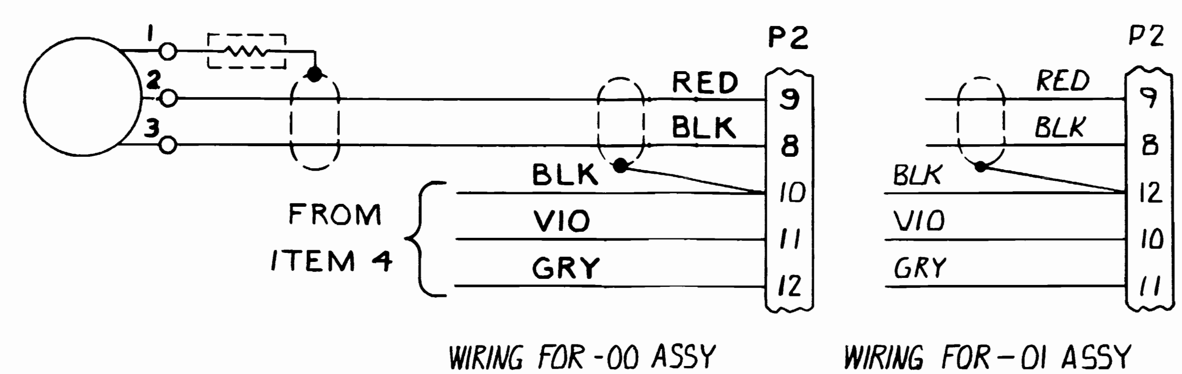
-02 Assembly

Volume Control Block Assembly 800-3282



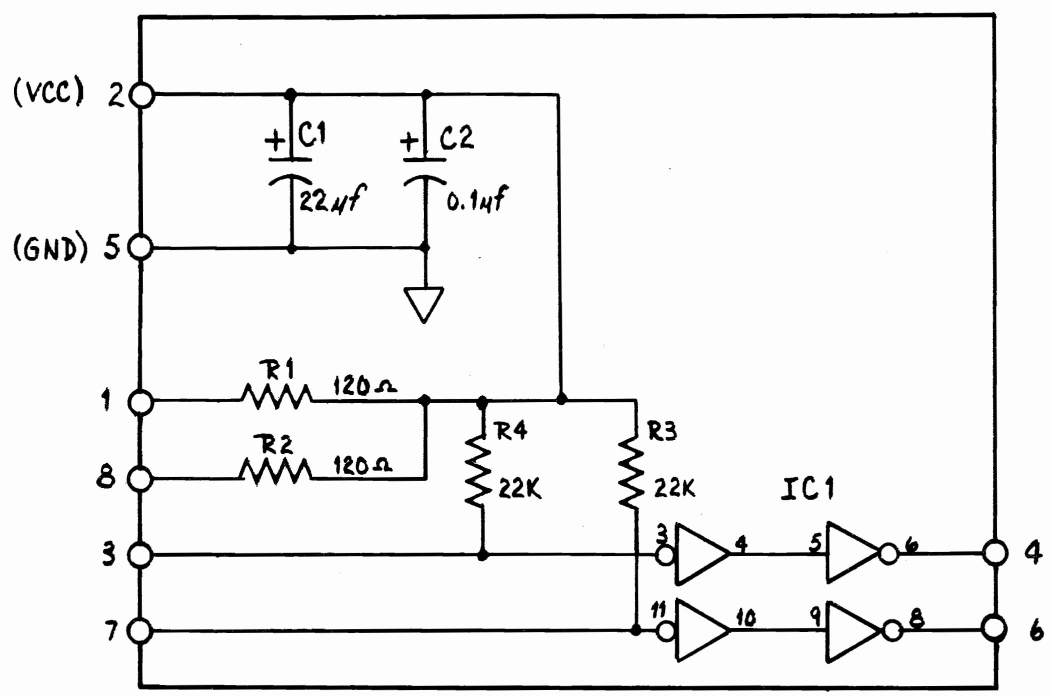
-02 Assembly

Coin System Assembly 800-3294-01



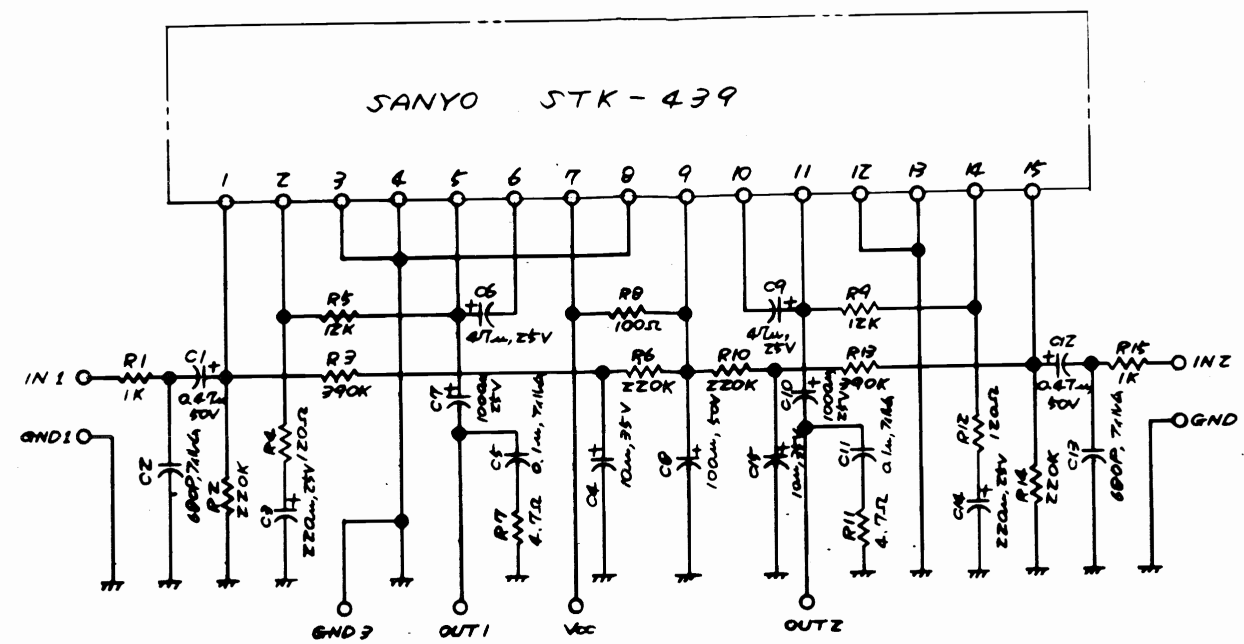
IC Buffer Board Assembly

834-0104



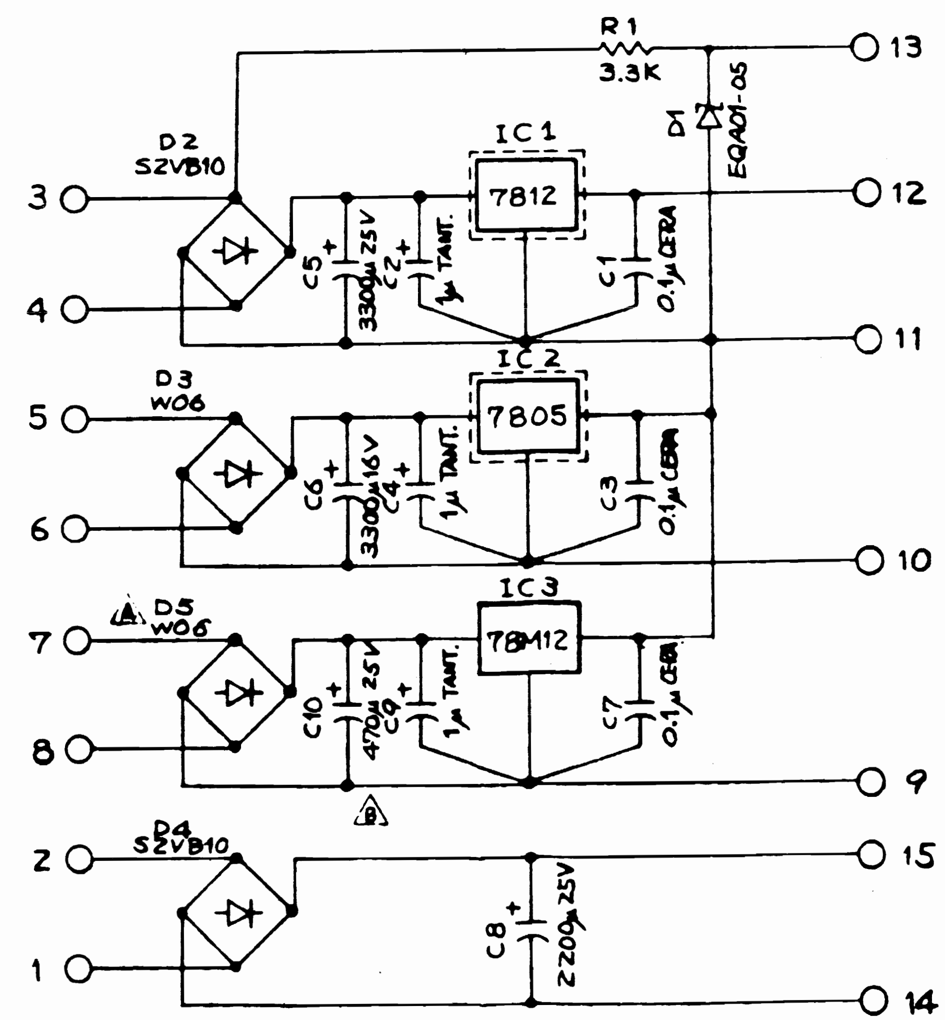
Power Amp Assembly

834-0121



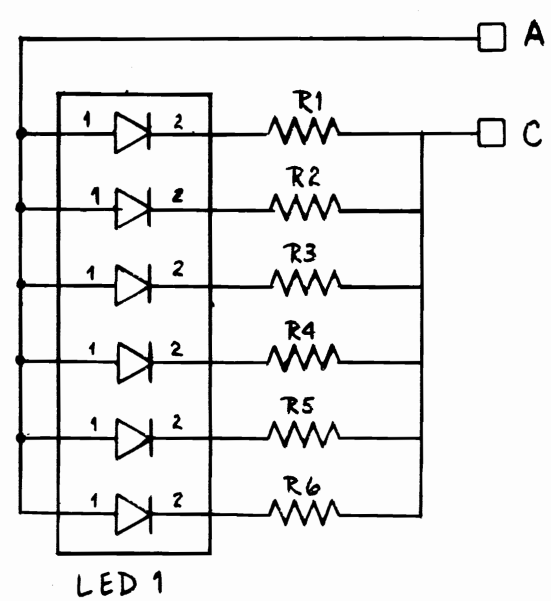
Regulator Unit

601-0612

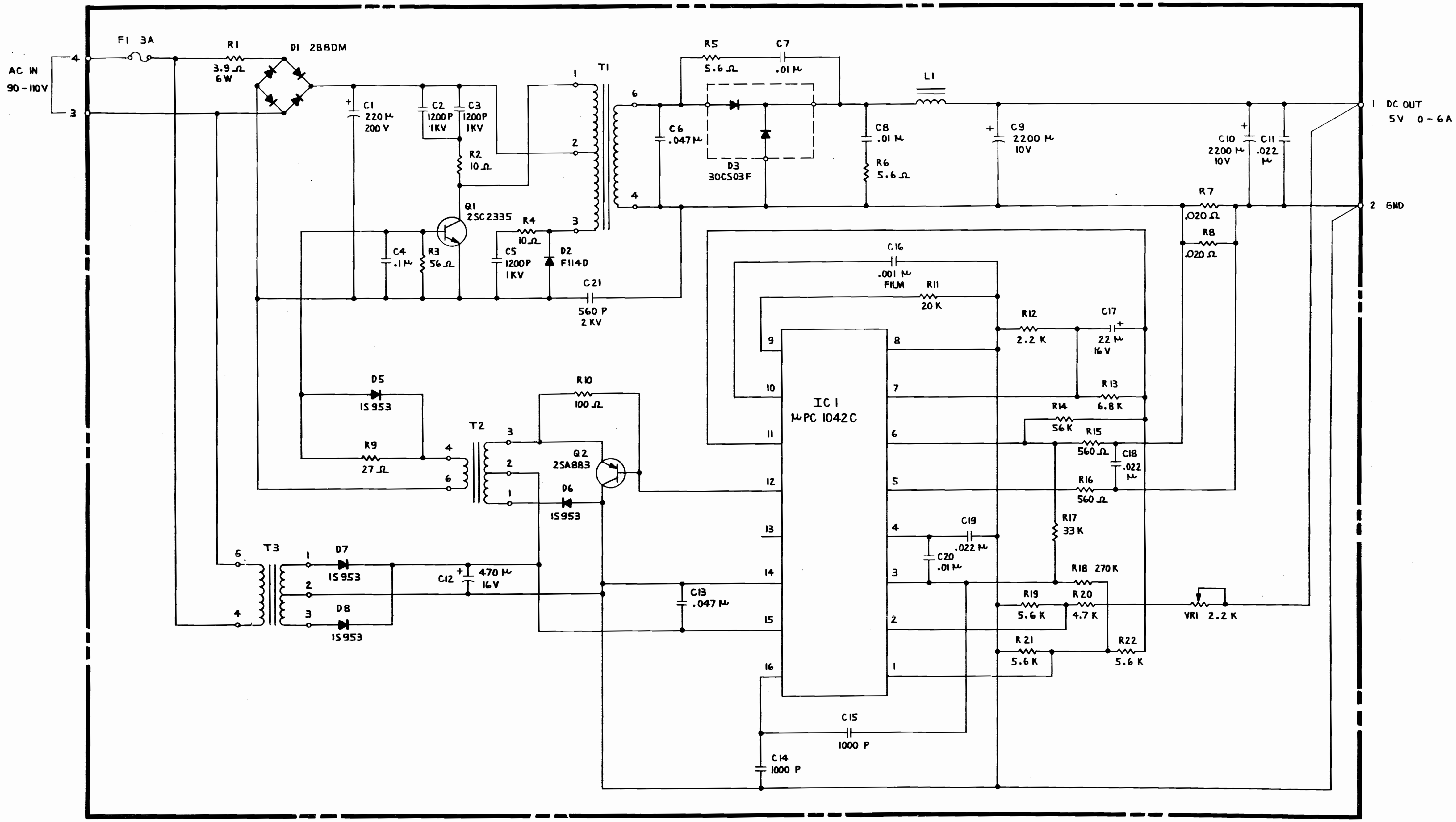


LED Board Assembly

834-0276



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	RELEASED SD	8-4-81	[illegible]



NOTES :

1. R7, R8 AS REQUIRED OTHERWISE USE JUMPER WIRE .

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS		DATE
DRAWN	SON DUONG	8-17-81
CHECKED	G GRICE	8-17-81
MECH		
ELEC		
MFG		
PROJECT		

Gremlin/SEGA
San Diego, California 92123

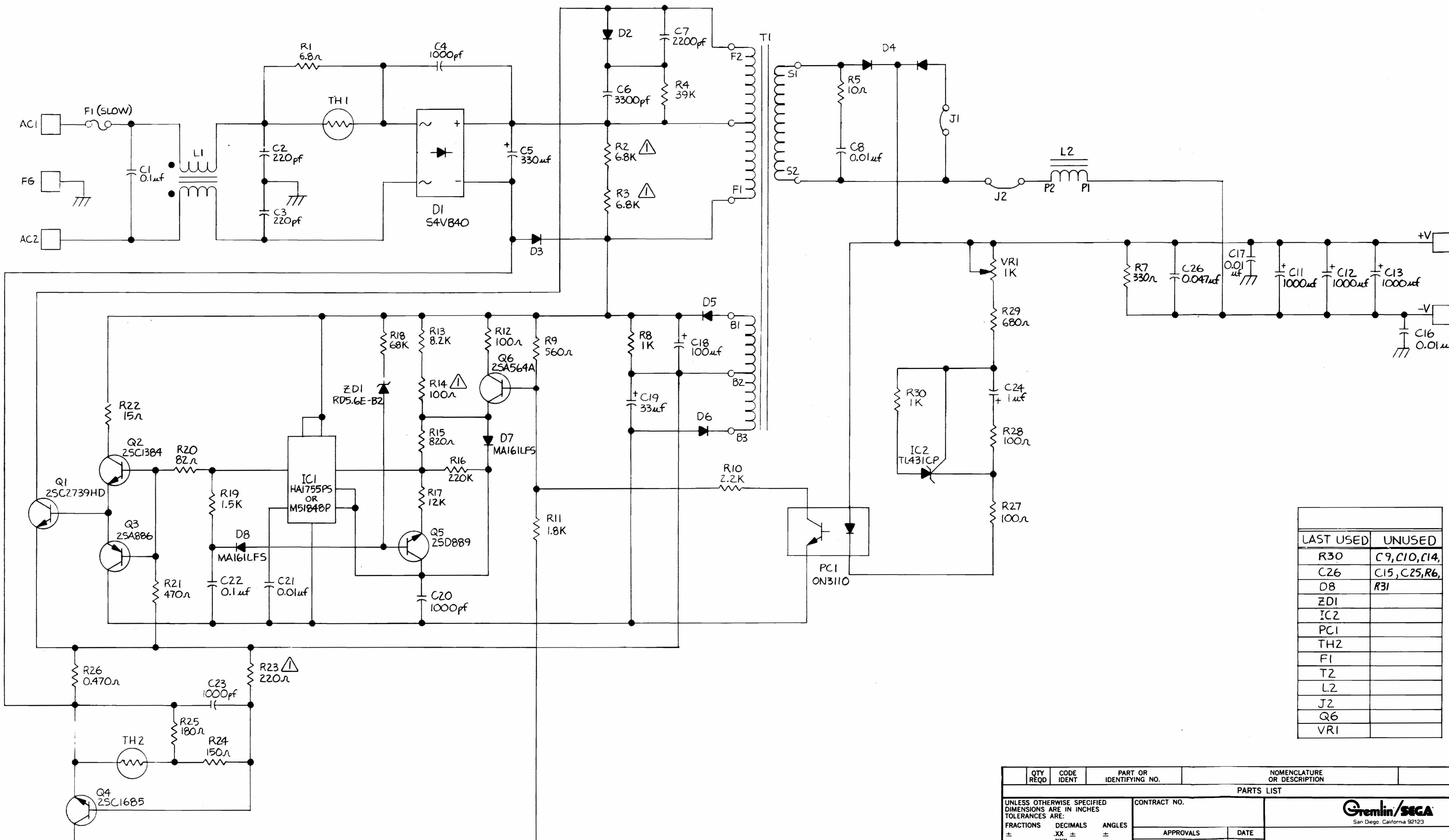
Switching Regulator

SIZE	CODE IDENT NO.	DRAWING NO.	REV
D		601-0158	A

SCALE NONE SHEET 1 OF 1

601-0158 A

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	—	SEE SHT 1		



LAST USED	UNUSED
R30	C9, C10, C14,
C26	C15, C25, R6,
D8	R31
ZD1	
IC2	
PC1	
TH2	
F1	
T2	
L2	
J2	
Q6	
VR1	

⚠ VALUE MAY VARY.

NOTES:

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS		DATE
DRAWN	DYNAPAC	4-82
CHECKED	[signature]	5-6-82
MECH		
ELEC		
MFG		
PROJECT		

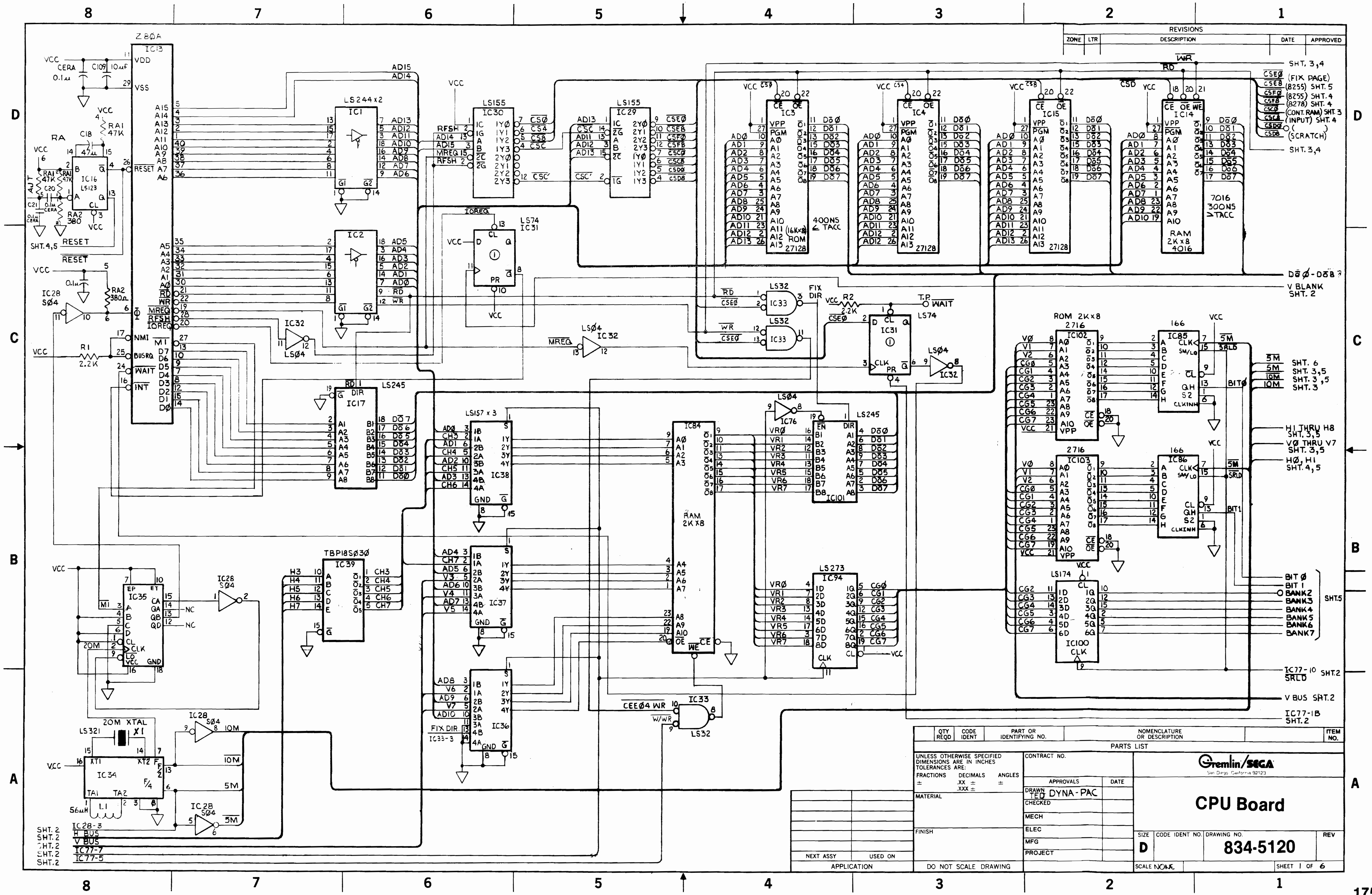
Gremlin/SEGA
San Diego, California 92123

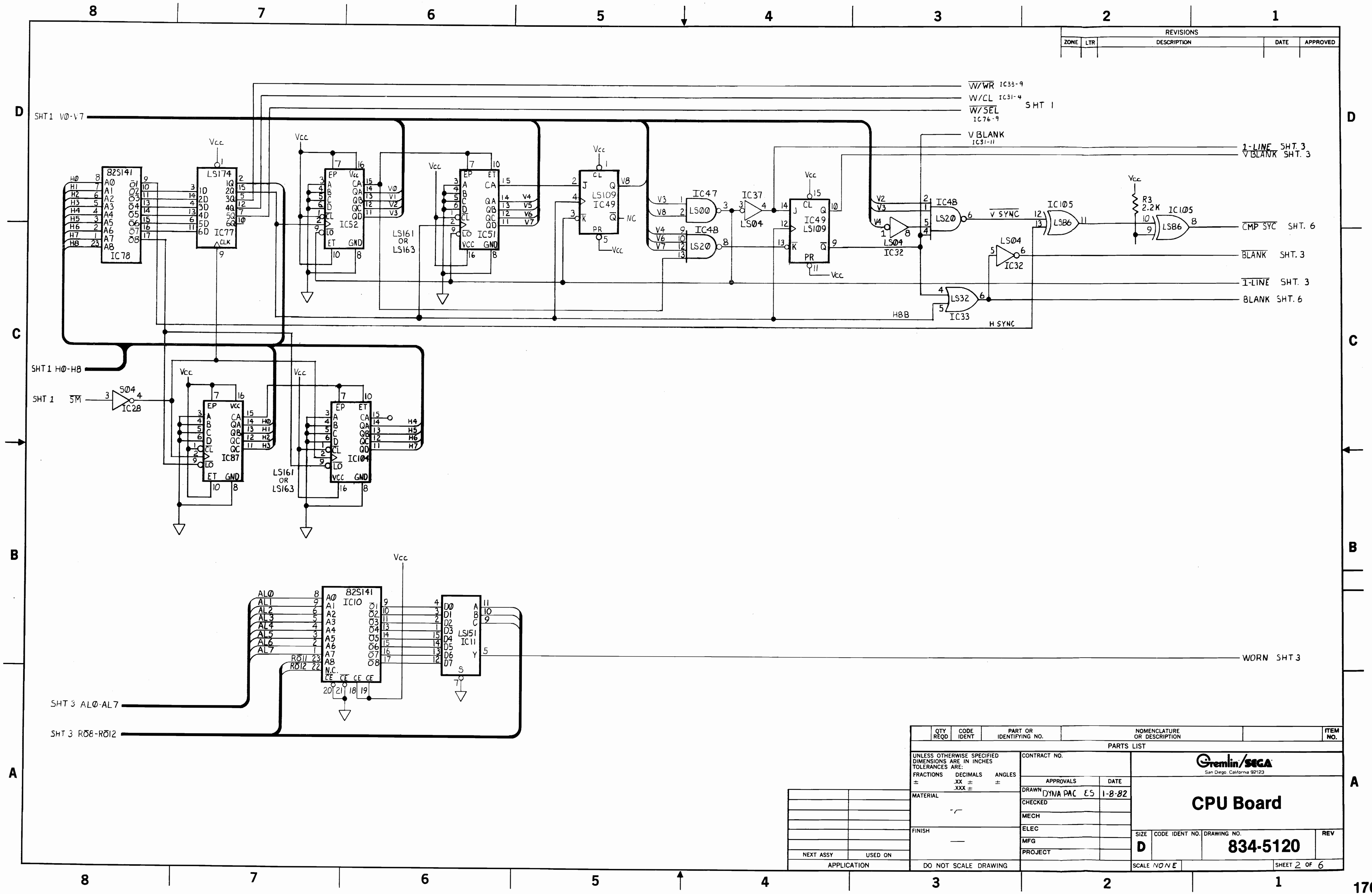
Switching Regulator

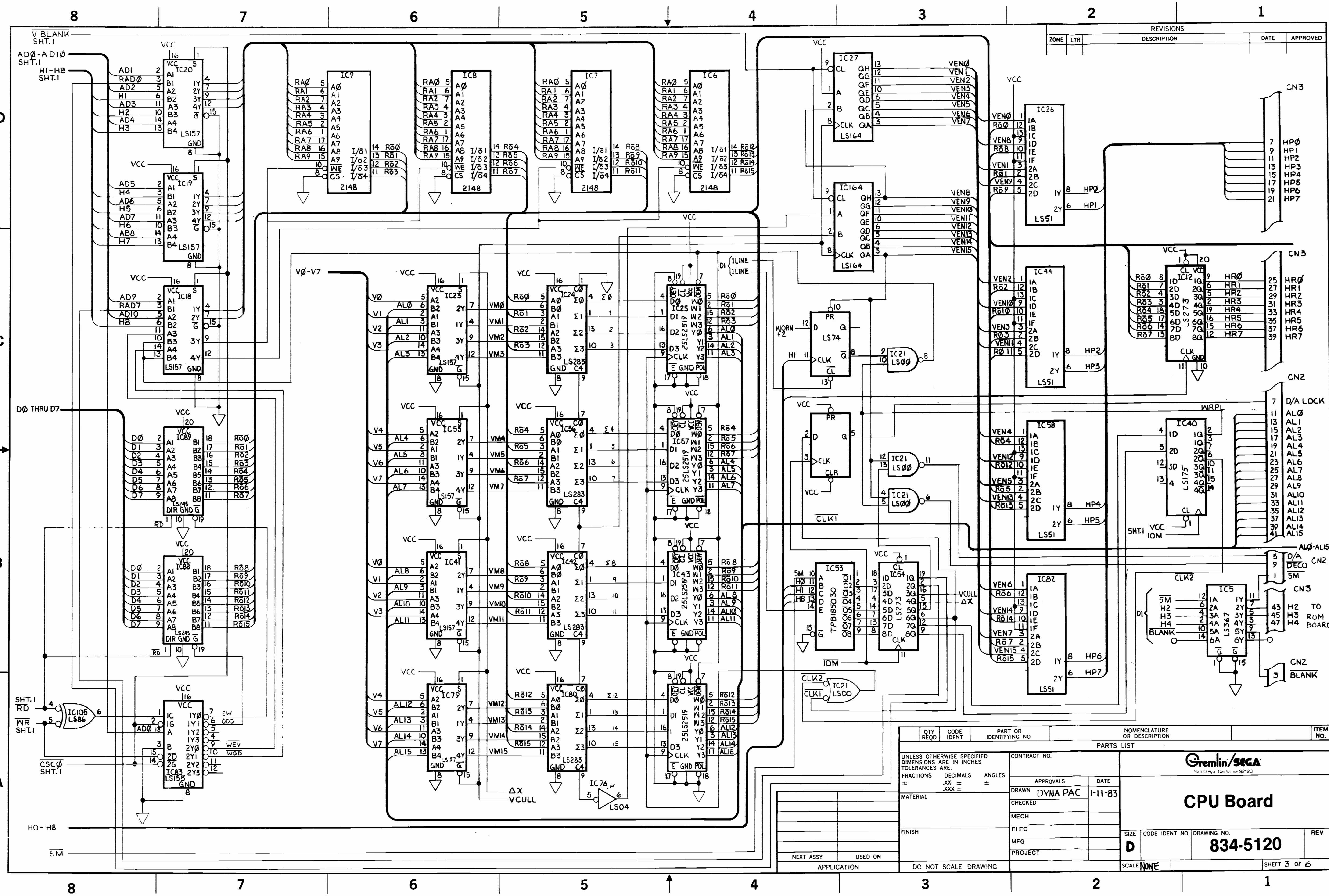
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D		601-0692	A

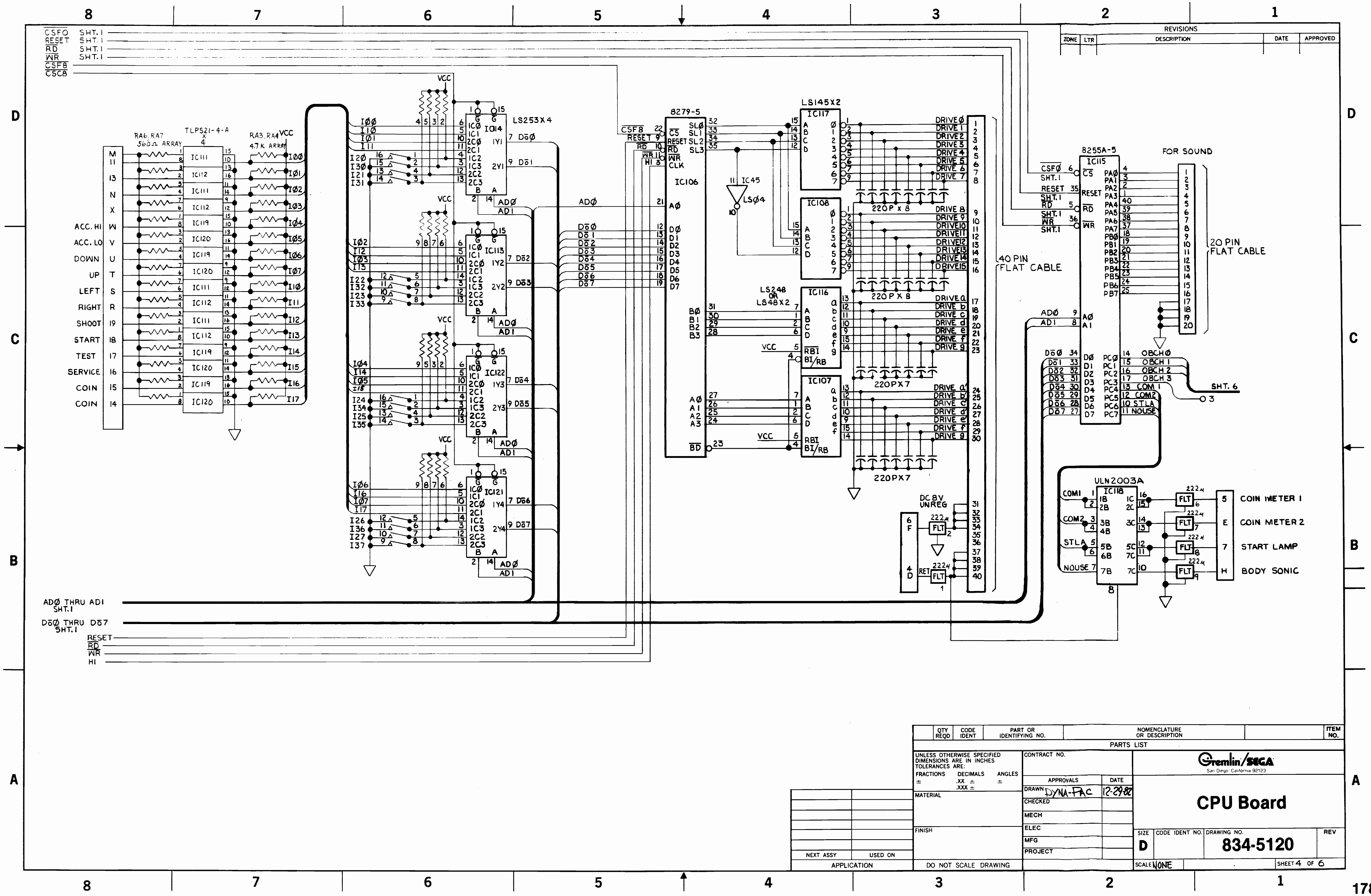
SCALE NONE — SHEET 5 OF 5

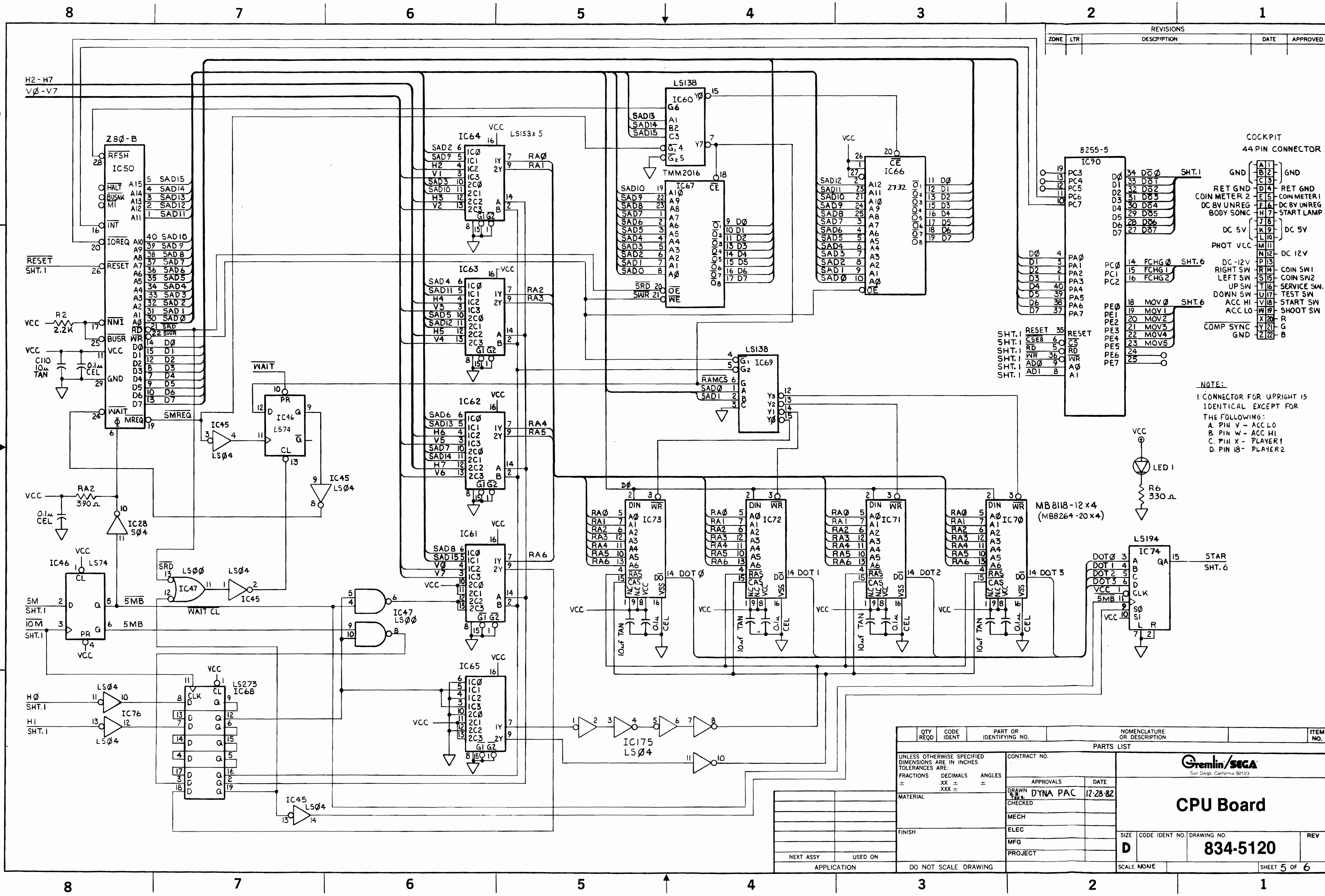
A 601-0692


Z80A
LS244x2
LS155
LS74
LS245
LS157 x 3
TBP18S030
LS273
LS174
ROM 2K x 8
RAM 2K x 8
20M XTAL
REVISIONS
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DO NOT SCALE DRAWING
APPLICATION
NEXT ASSY
USED ON
TED DYNA-PAC
Gremlin/SEGA
CPU Board
SIZE D
834-5120
SCALE NONE
SHEET 1 OF 6


REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
SHT 1 V0-V7
SHT 1 H0-H8
SHT 1 5M
W/WR IC33-9
W/CL IC31-4
W/SEL IC76-9
SHT 1
V BLANK IC31-11
1-LINE SHT. 3
V BLANK SHT. 3
CMP SYC SHT. 6
BLANK SHT. 3
1-LINE SHT. 3
BLANK SHT. 6
H8B
H SYNC
V SYNC
82S141
IC78
LS174
IC77
IC52
IC51
LS161 OR LS163
LS109
IC49
IC47
LS00
IC37
LS04
IC48
LS20
IC32
IC105
LS86
R3 2.2K
LS32
IC33
S04
IC28
IC87
IC104
Vcc
82S141
IC10
LS151
IC11
WORN SHT 3
SHT 3 AL0-AL7
SHT 3 R08-R012
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS
DECIMALS
ANGLES
MATERIAL
FINISH
CONTRACT NO.
APPROVALS
DATE
DRAWN DYNA PAC ES
1-8-82
CHECKED
MECH
ELEC
MFG
PROJECT
Gremlin/SEGA
San Diego, California 92123
CPU Board
SIZE D
CODE IDENT NO.
DRAWING NO. 834-5120
REV
SCALE NONE
SHEET 2 OF 6
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING


CPU Board
Gremlin/SEGA
San Diego, California 92123
DRAWN DYNA PAC 1-11-83
SIZE D
DRAWING NO. 834-5120
SCALE NONE
SHEET 3 OF 6
DO NOT SCALE DRAWING
PARTS LIST
REVISIONS
APPLICATION
V BLANK SHT.1
ADØ-AD1Ø SHT.1
H1-H8 SHT.1
VØ-V7
DØ THRU D7
HO-H8
ALØ-AL15
CN2
CN3
TO ROM BOARD


REVISIONS
ZONE LTR DESCRIPTION DATE APPROVED
CSFO SHT. I
RESET SHT. I
RD SHT. I
WR SHT. I
CSF8
CSC8
RA6, RA7 560Ω ARRAY
TLP521-4-A X 4
RA3, RA4 4.7K ARRAY
VCC
ACC. HI
ACC. LO
DOWN
UP
LEFT
RIGHT
SHOOT
START
TEST
SERVICE
COIN
COIN
LS253X4
IC114
IC113
IC122
IC121
8279-5
IC106
IC45
LS04
LS145X2
IC117
IC108
LS248 OR LS48X2
IC116
IC107
220P x 8
220PX7
DRIVE Ø
40 PIN FLAT CABLE
DC 8V UNREG
8255A-5
IC115
FOR SOUND
20 PIN FLAT CABLE
SHT. 6
ULN2003A
IC118
COIN METER 1
COIN METER 2
START LAMP
BODY SONIC
ADØ THRU AD1 SHT. I
DØ0 THRU DØ7 SHT. I
RESET
RD
WR
HI
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ±
DECIMALS .XX ± .XXX ±
ANGLES ±
MATERIAL
FINISH
CONTRACT NO.
APPROVALS
DATE
DRAWN DYNA-FAC 12-29-82
CHECKED
MECH
ELEC
MFG
PROJECT
Gremlin/SEGA
San Diego California 92123
CPU Board
SIZE D
CODE IDENT NO.
DRAWING NO. 834-5120
REV
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
SCALE NONE
SHEET 4 OF 6



QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY — USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

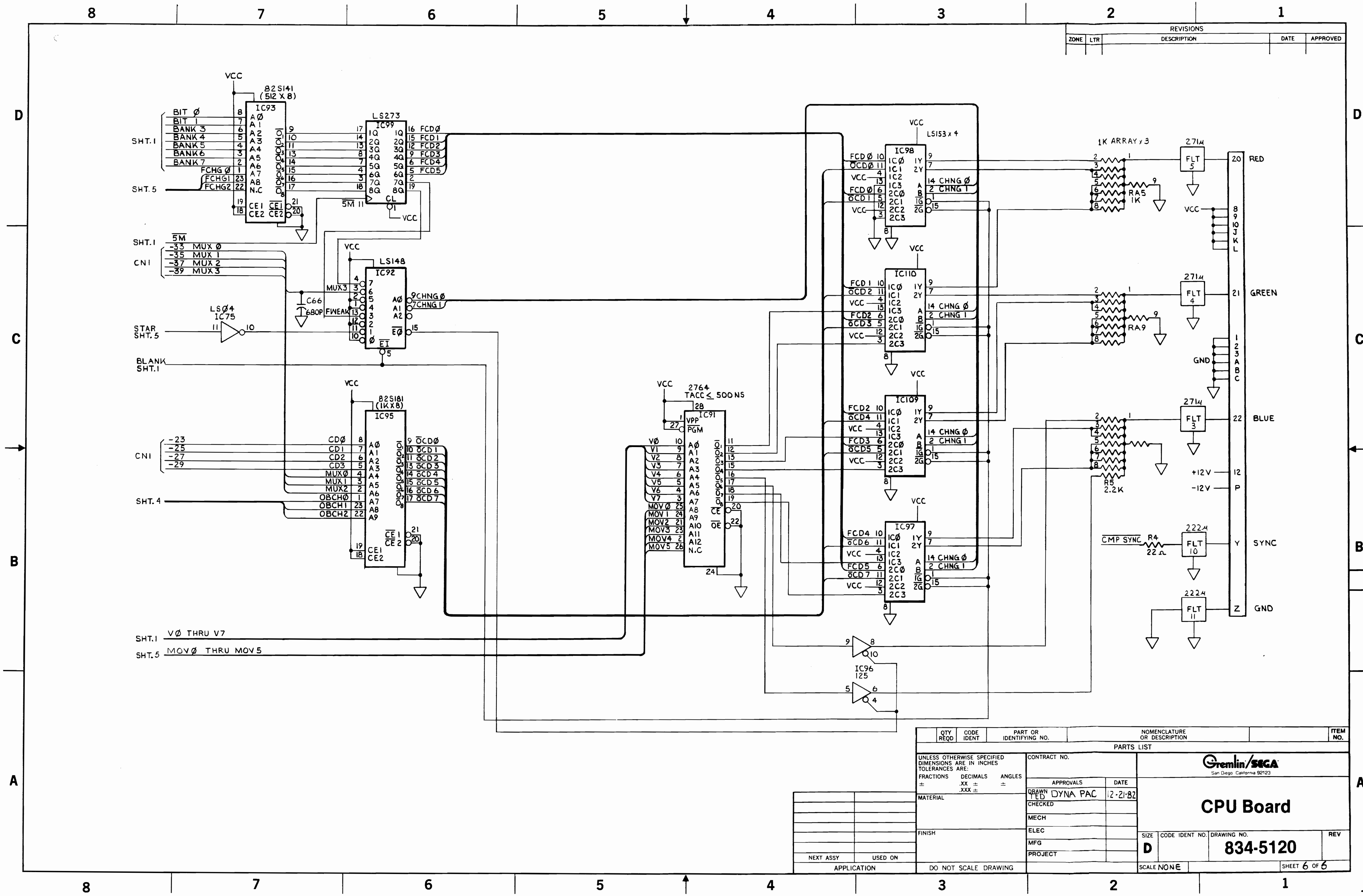
APPROVALS		DATE
DRAWN	DYNA PAC	12-28-82
CHECKED		
MECH		
ELEC		
MFG		
PROJECT		

Gremlin/SEGA
San Diego, California 92123

CPU Board

SIZE D — CODE IDENT NO. — DRAWING NO. 834-5120 — REV

SCALE NONE — SHEET 5 OF 6



ITEM NO.	QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

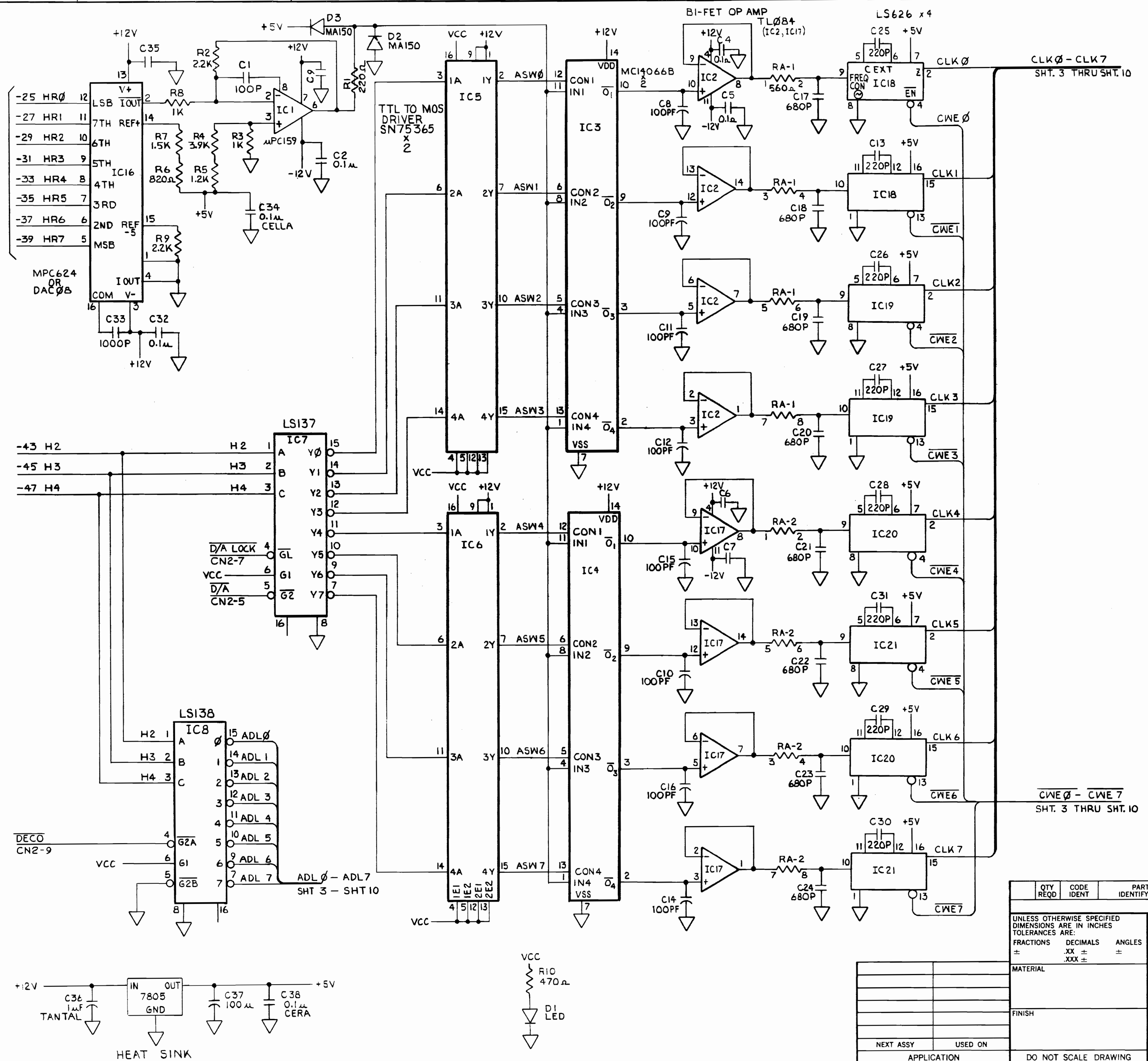
APPROVALS	DATE
DRAWN TED DYNA PAC	12-21-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA
San Diego California 92123

CPU Board

SIZE D | CODE IDENT NO. | DRAWING NO. 834-5120 | REV

SCALE NONE | SHEET 6 OF 6



QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

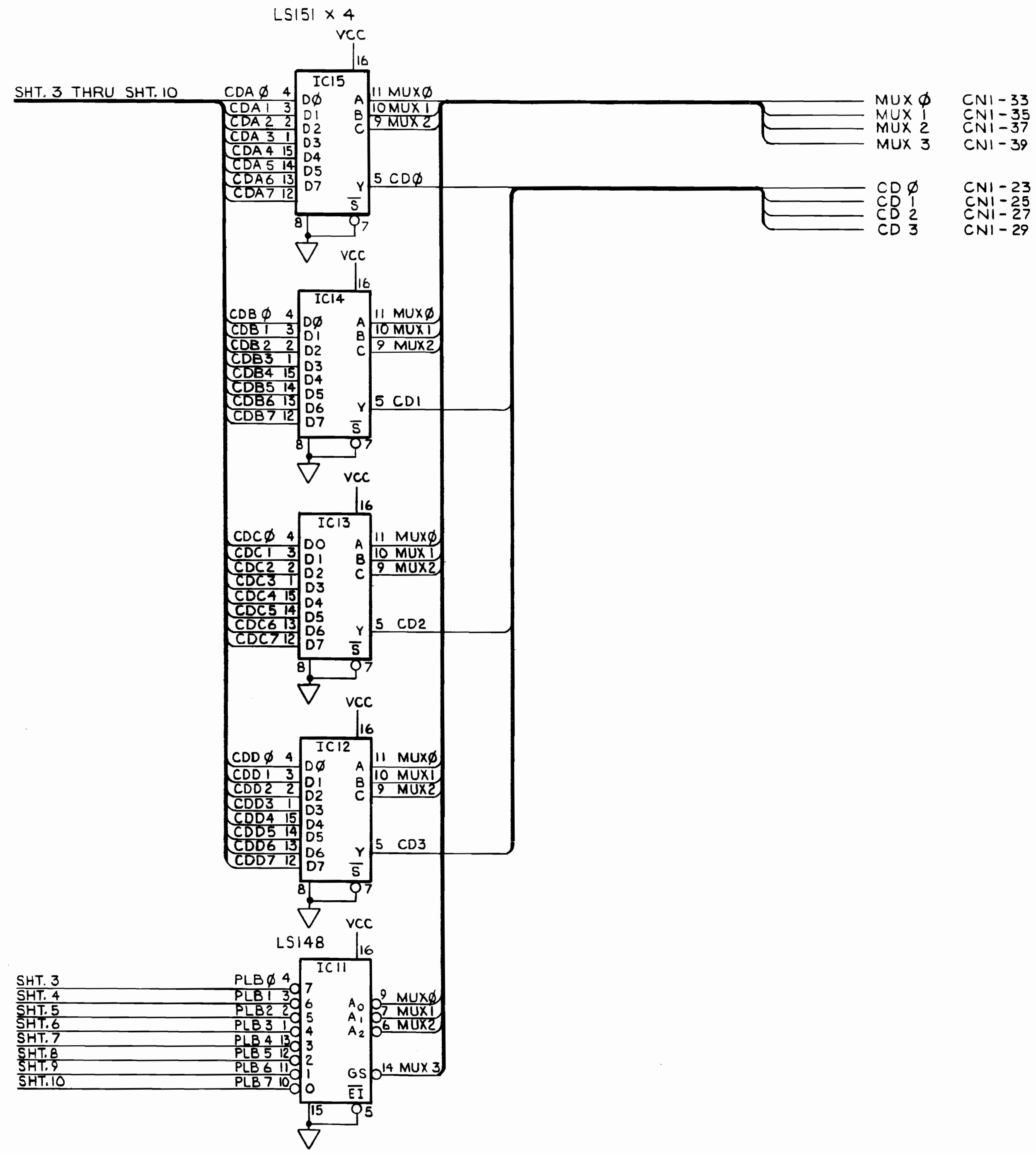
APPROVALS	DATE
DRAWN DYNA-PAC	12-13-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA
San Diego, California 92123

EPROM Board

SIZE D | CODE IDENT NO. | DRAWING NO. 834-5121 | REV

SCALE NONE | SHEET 1 OF 10



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

NEXT ASSY | USED ON

APPLICATION

CONTRACT NO.

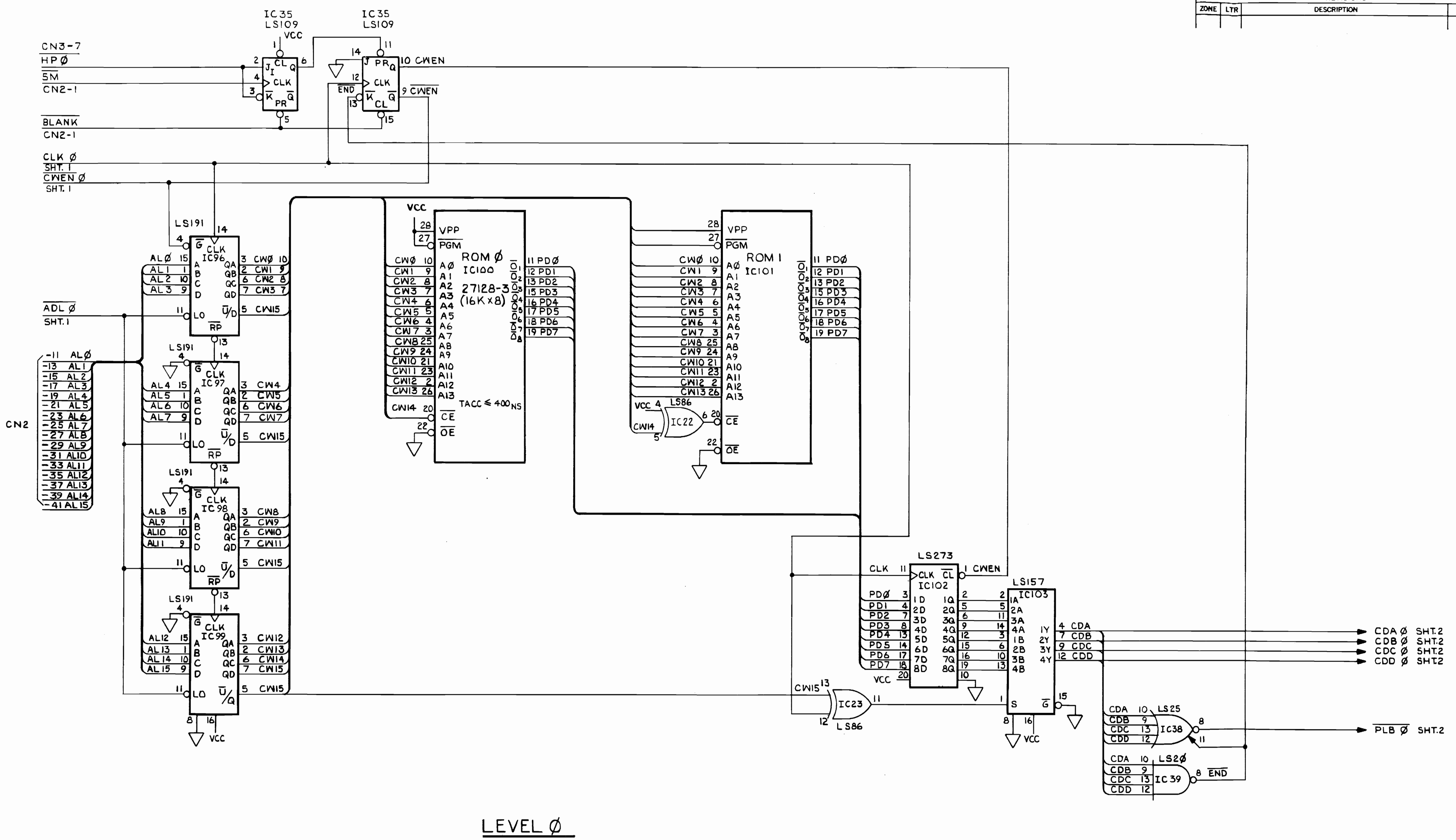
APPROVALS		DATE
DRAWN	TED DYNA PAC	12-15-82
CHECKED		
MECH		
ELEC		
MFG		
PROJECT		

Gremlin/SEGA
San Diego, California 92123

EPROM Board

SIZE D | CODE IDENT NO. | DRAWING NO. 834-5121 | REV

SCALE NONE | SHEET 2 OF 10



LEVEL Ø

ZONE	LTR	REVISIONS DESCRIPTION	DATE	APPROVED

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON
APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

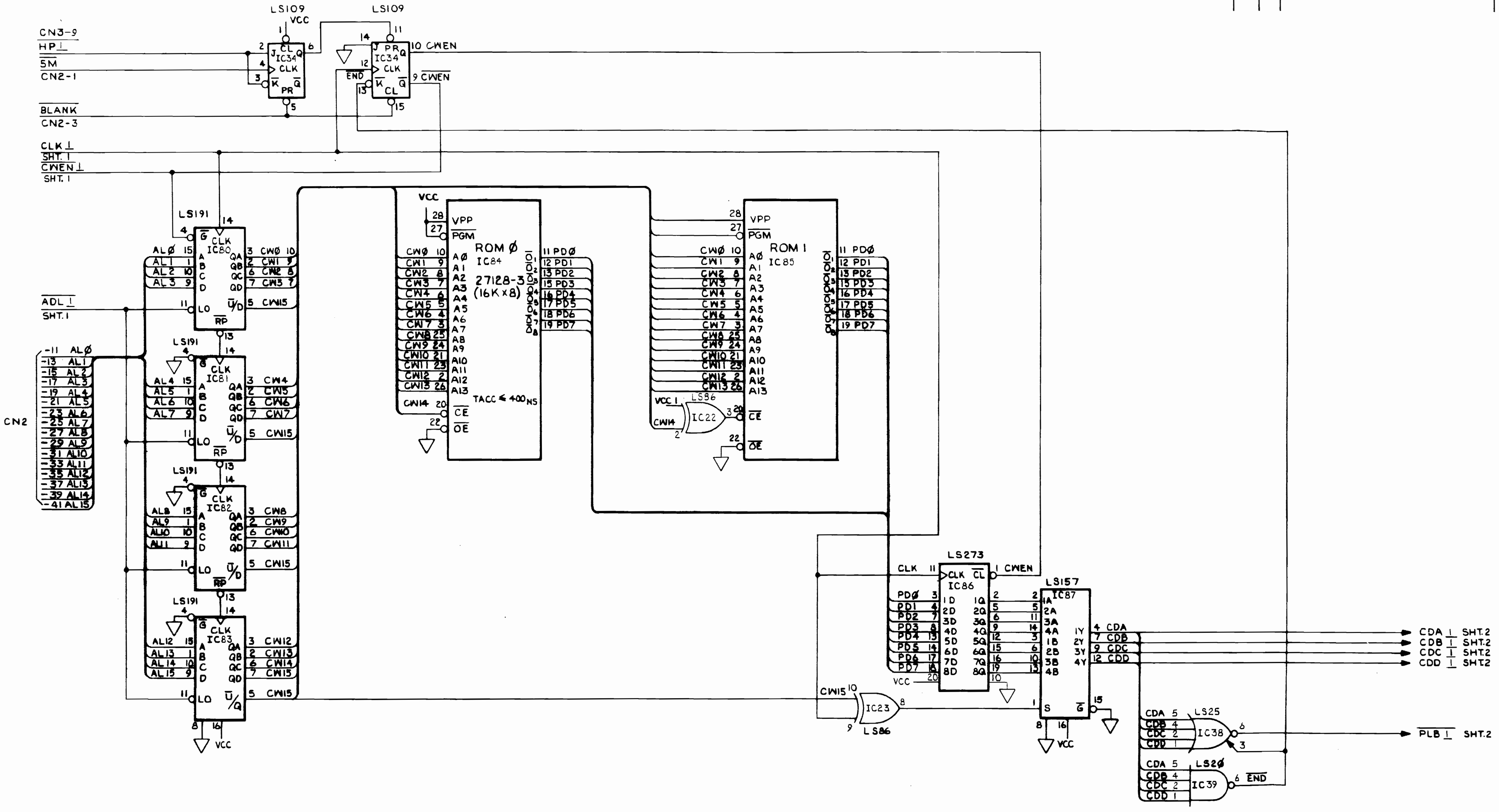
APPROVALS	DATE
DRAWN TED DYNA-PAC	12-8-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA
San Diego California 92123

EPROM Board

SIZE D | CODE IDENT NO. | DRAWING NO. 834-5121 | REV

SCALE | SHEET 3 OF 10



LEVEL 1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON
APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

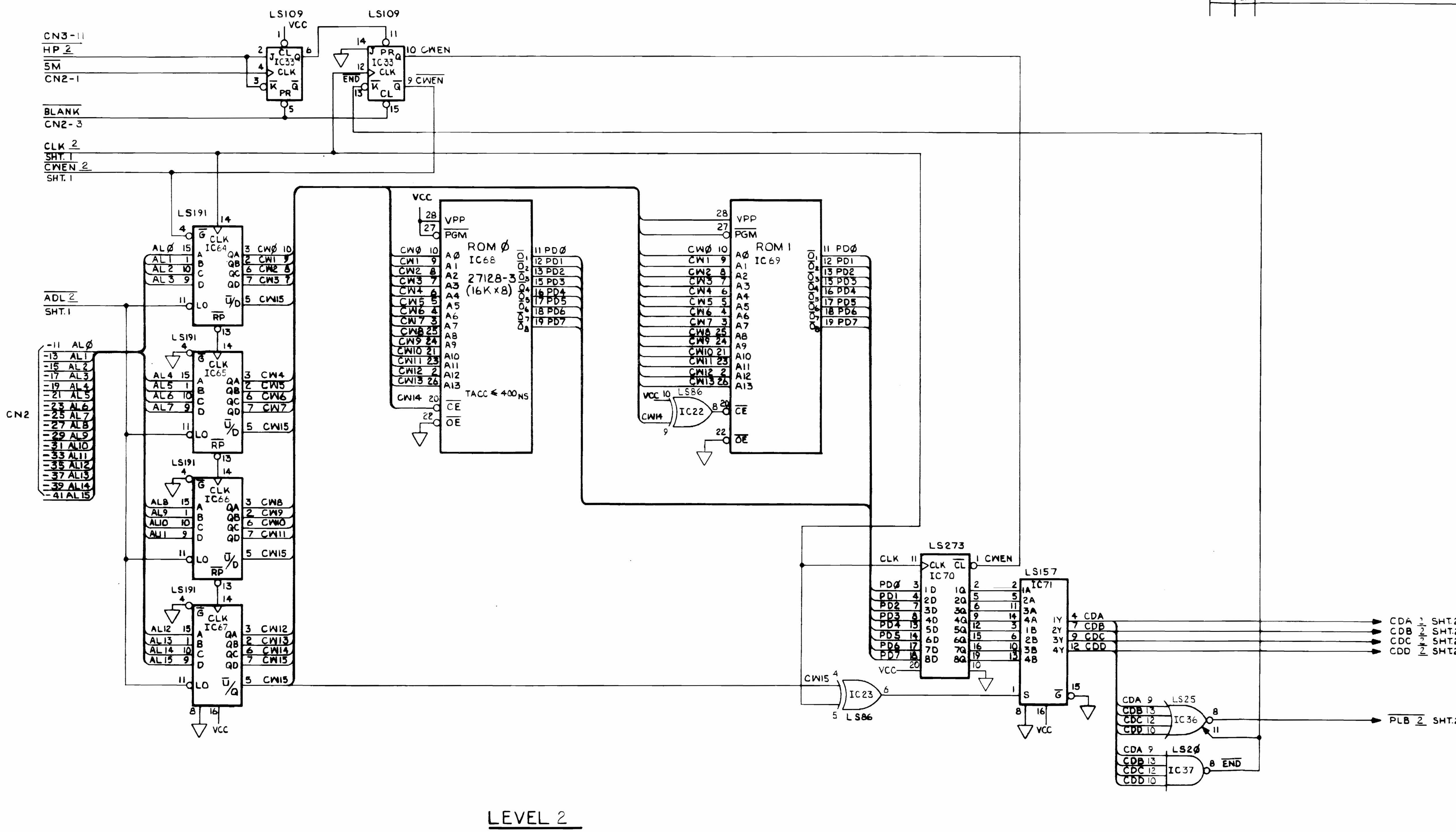
APPROVALS	DATE
DRAWN TED DYNA-PAC	12-8-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA
San Diego, California 92123

EPROM Board

SIZE D | CODE IDENT NO. | DRAWING NO. 834-5121 | REV

SCALE | SHEET 4 OF 10



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS ± DECIMALS XX ± XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

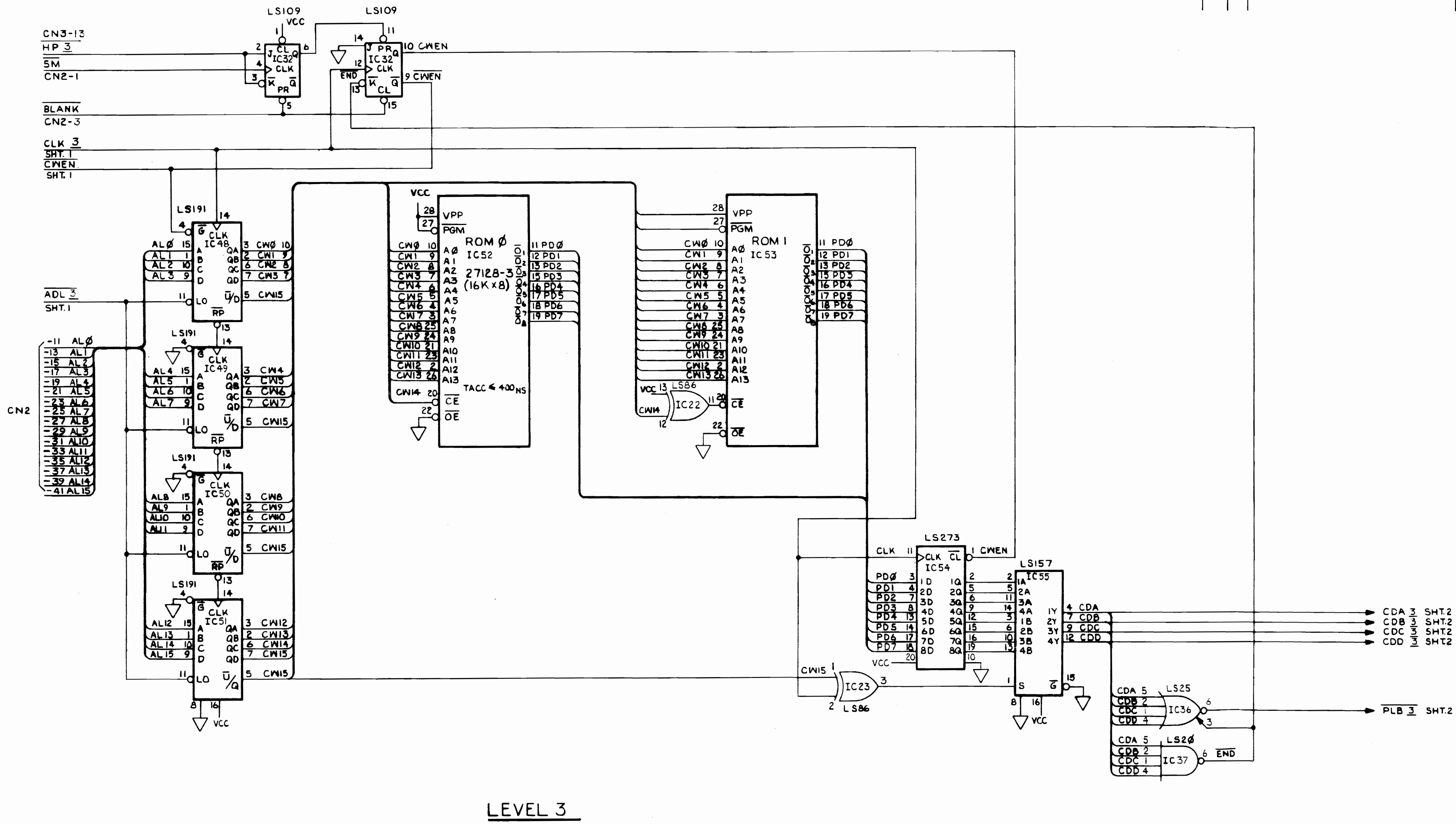
APPROVALS	DATE
DRAWN TED DYNA-PAC	12-8-82
CHECKED	
MECH	
ELEC	
MFG	
PROJECT	

Gremlin/SEGA

EPROM Board

SIZE D | CODE IDENT NO. | DRAWING NO. 834-5121 | REV

SCALE | SHEET 5 OF 10



LEVEL 3

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS ± DECIMALS XX ± XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON
APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

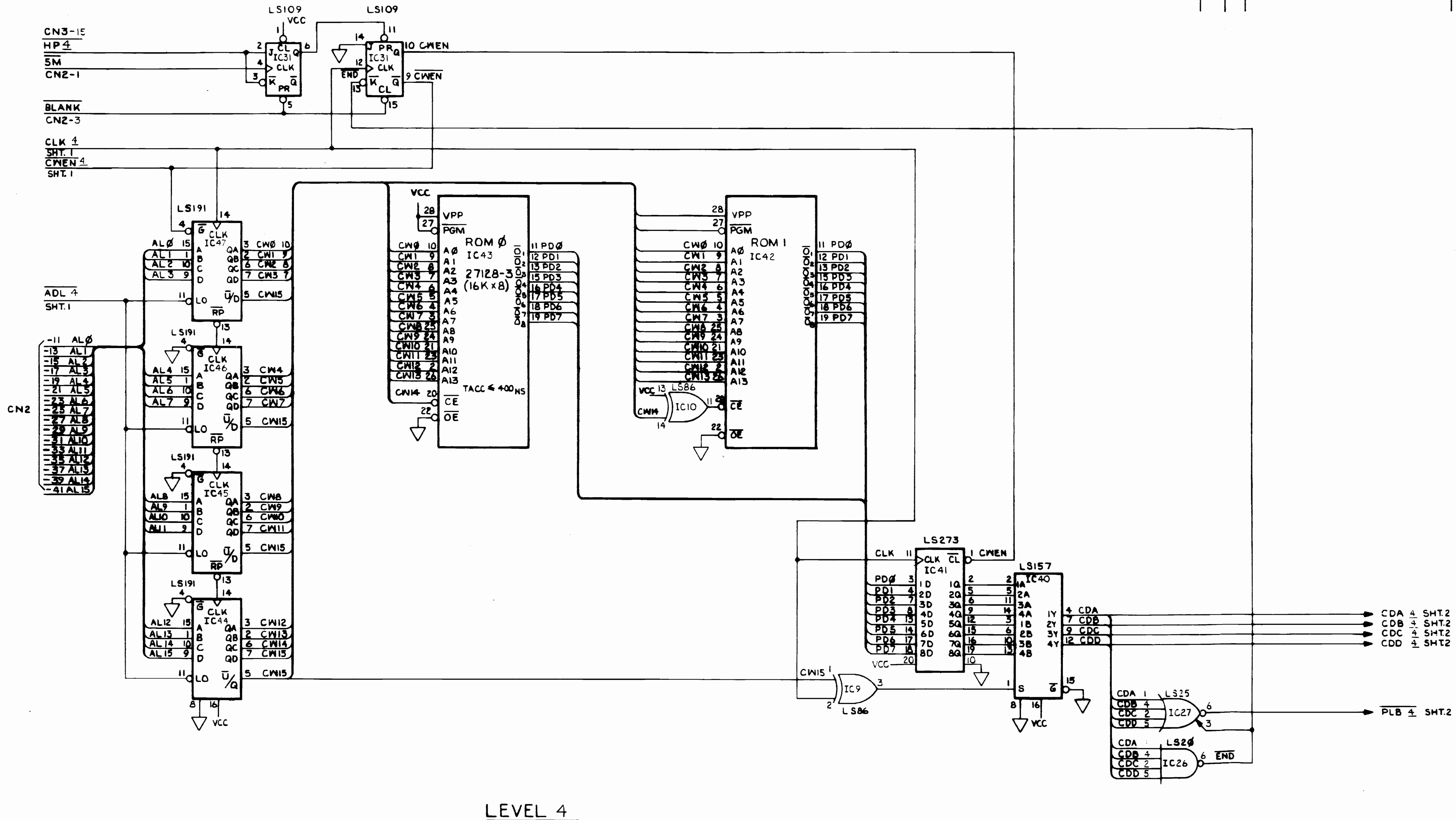
APPROVALS		DATE
DRAWN	TED DYNA-PAC	12-8-82
CHECKED		
MECH		
ELEC		
MFG		
PROJECT		

Gremlin/SEGA

EPROM Board

SIZE D | CODE IDENT NO | DRAWING NO 834-5121 | REV

SCALE | SHEET 6 OF 10



LEVEL 4

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS ± DECIMALS XX ± XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

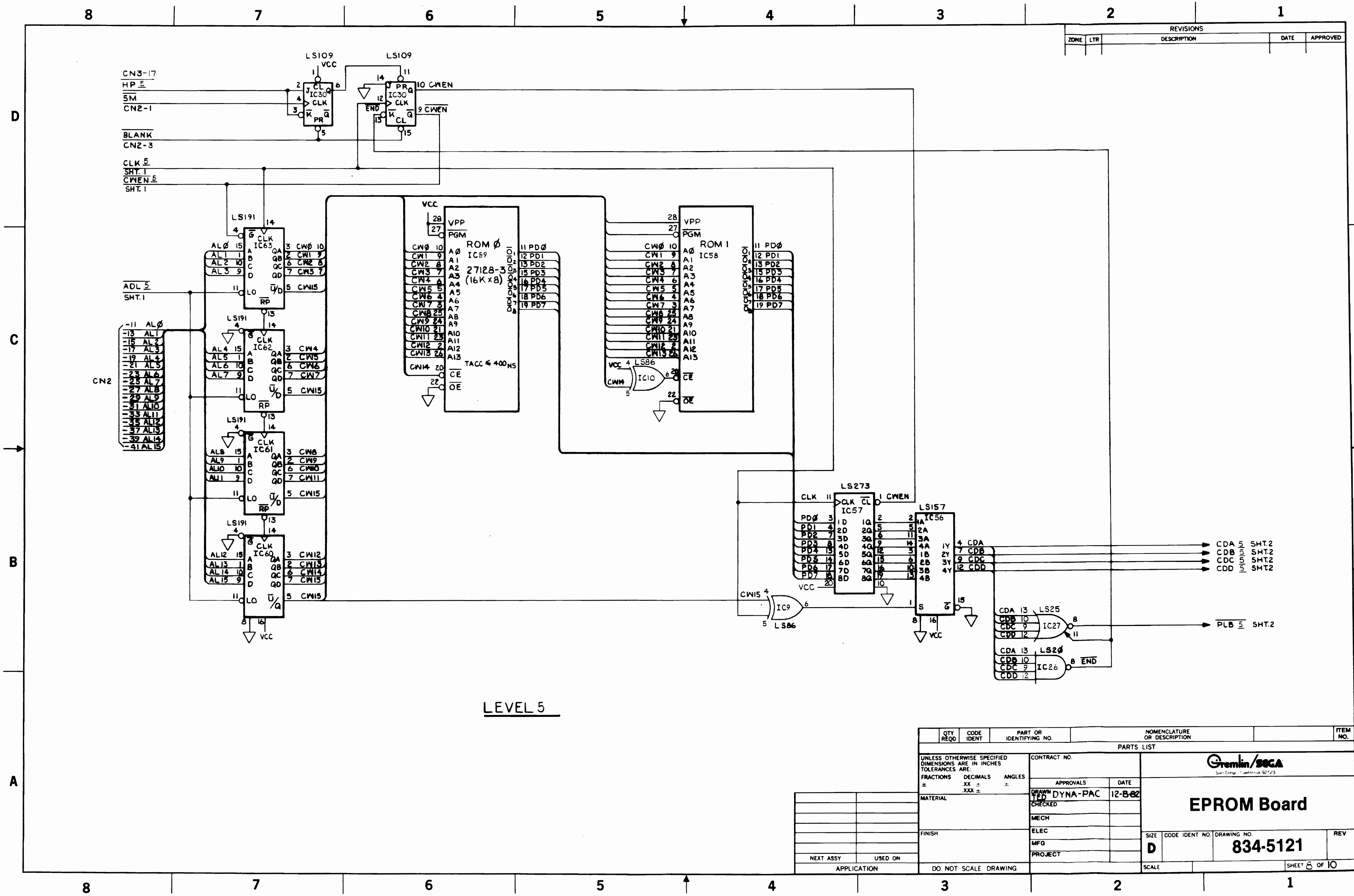
APPROVALS		DATE
DRAWN	TED DYNA-PAC	12-8-82
CHECKED		
MECH		
ELEC		
MFG		
PROJECT		

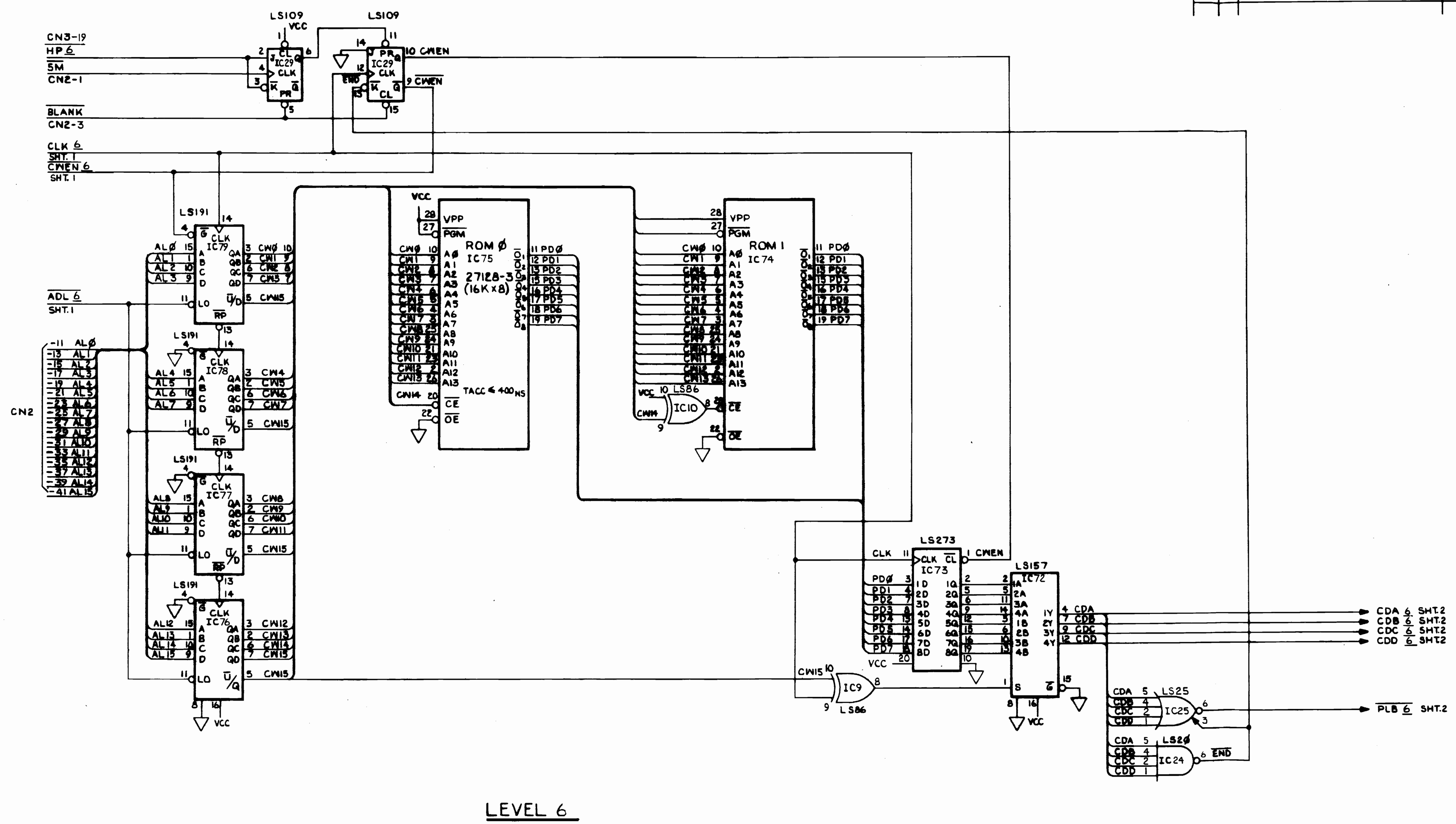
Gremlin/SEGA

EPROM Board

SIZE D | CODE IDENT NO | DRAWING NO 834-5121 | REV

SCALE | SHEET 7 OF 10


REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
LS109
IC30
LS191
IC63
IC62
IC61
IC60
ROM Ø
IC59
27128-3
(16K x 8)
ROM 1
IC58
LS86
IC10
IC9
LS273
IC57
LS157
IC56
LS25
IC27
LS20
IC26
CN2
CDA 5 SHT.2
CDB 5 SHT.2
CDC 5 SHT.2
CDD 5 SHT.2
PLB 5 SHT.2
LEVEL 5
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS
DECIMALS
ANGLES
MATERIAL
FINISH
CONTRACT NO.
APPROVALS
DATE
DRAWN TED DYNA-PAC
12-8-82
CHECKED
MECH
ELEC
MFG
PROJECT
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
Gremlin/SEGA
EPROM Board
SIZE D
CODE IDENT NO.
DRAWING NO.
834-5121
REV
SCALE
SHEET 8 OF 10



ITEM NO.	QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS | DATE

DRAWN TED DYNA-PAC 12-8-82

CHECKED

MECH

ELEC

MFG

PROJECT

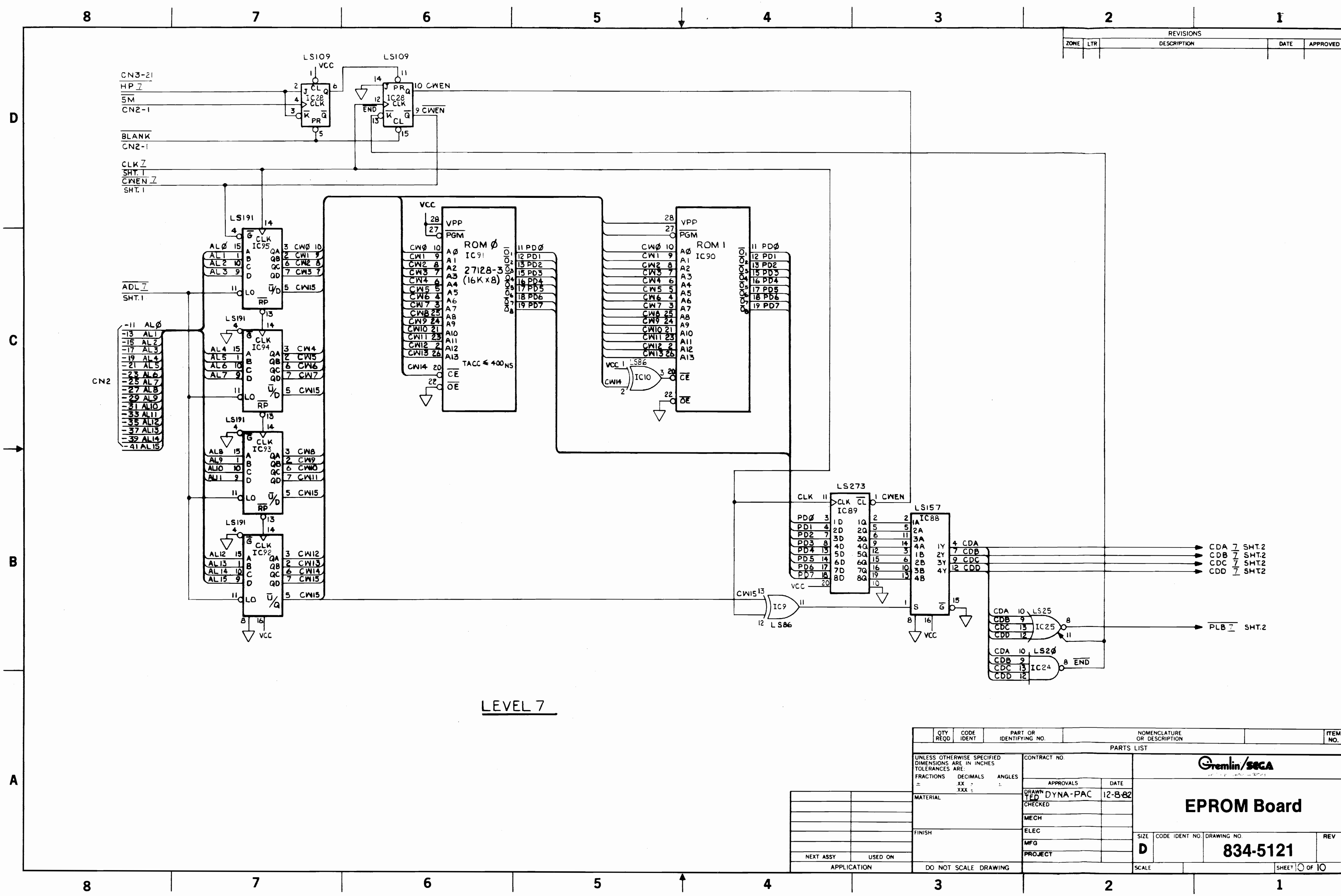
Gremlin/SEGA
San Diego California 92123

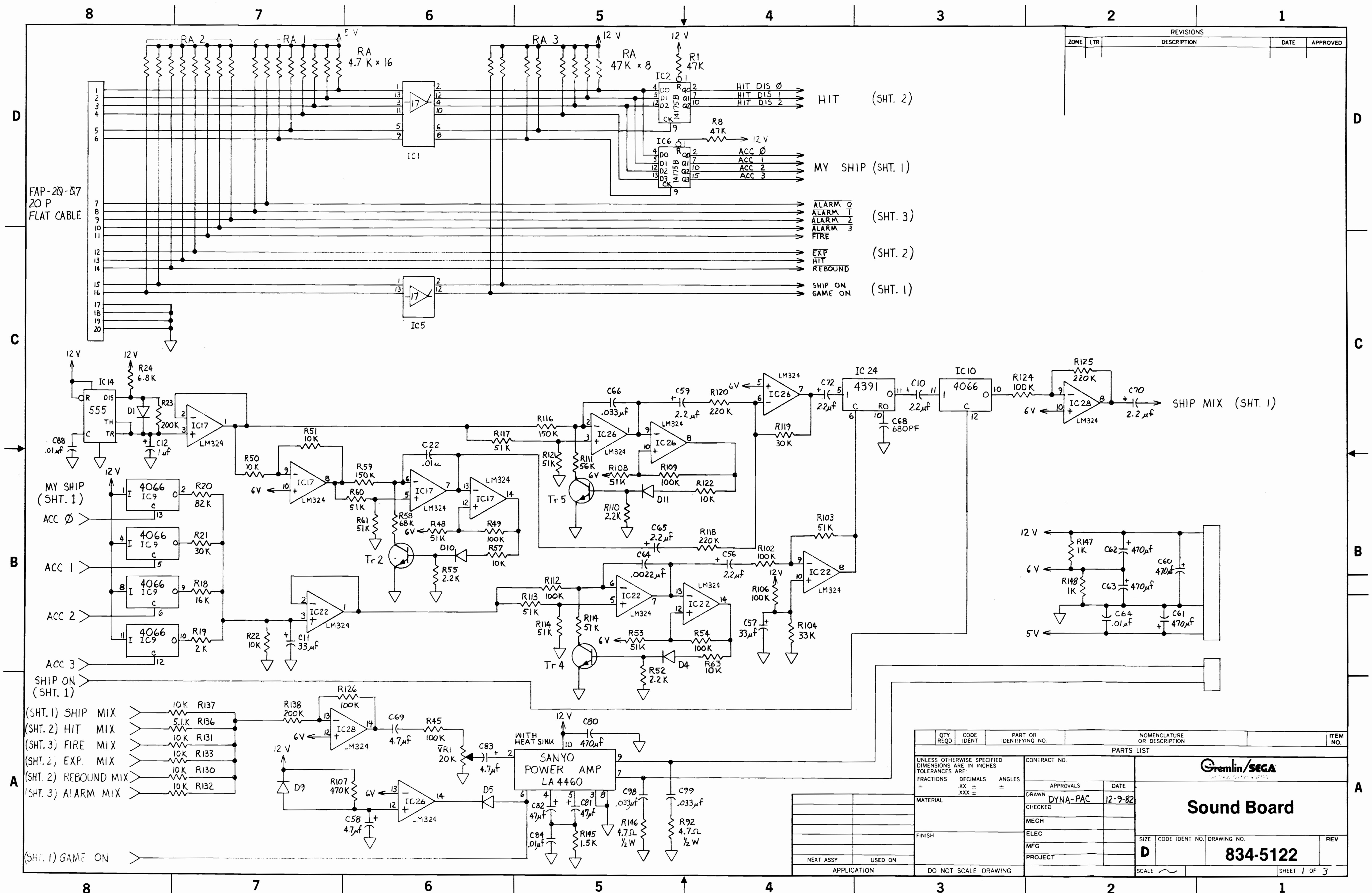
EPROM Board

SIZE D | CODE IDENT NO. | DRAWING NO. 834-5121 | REV

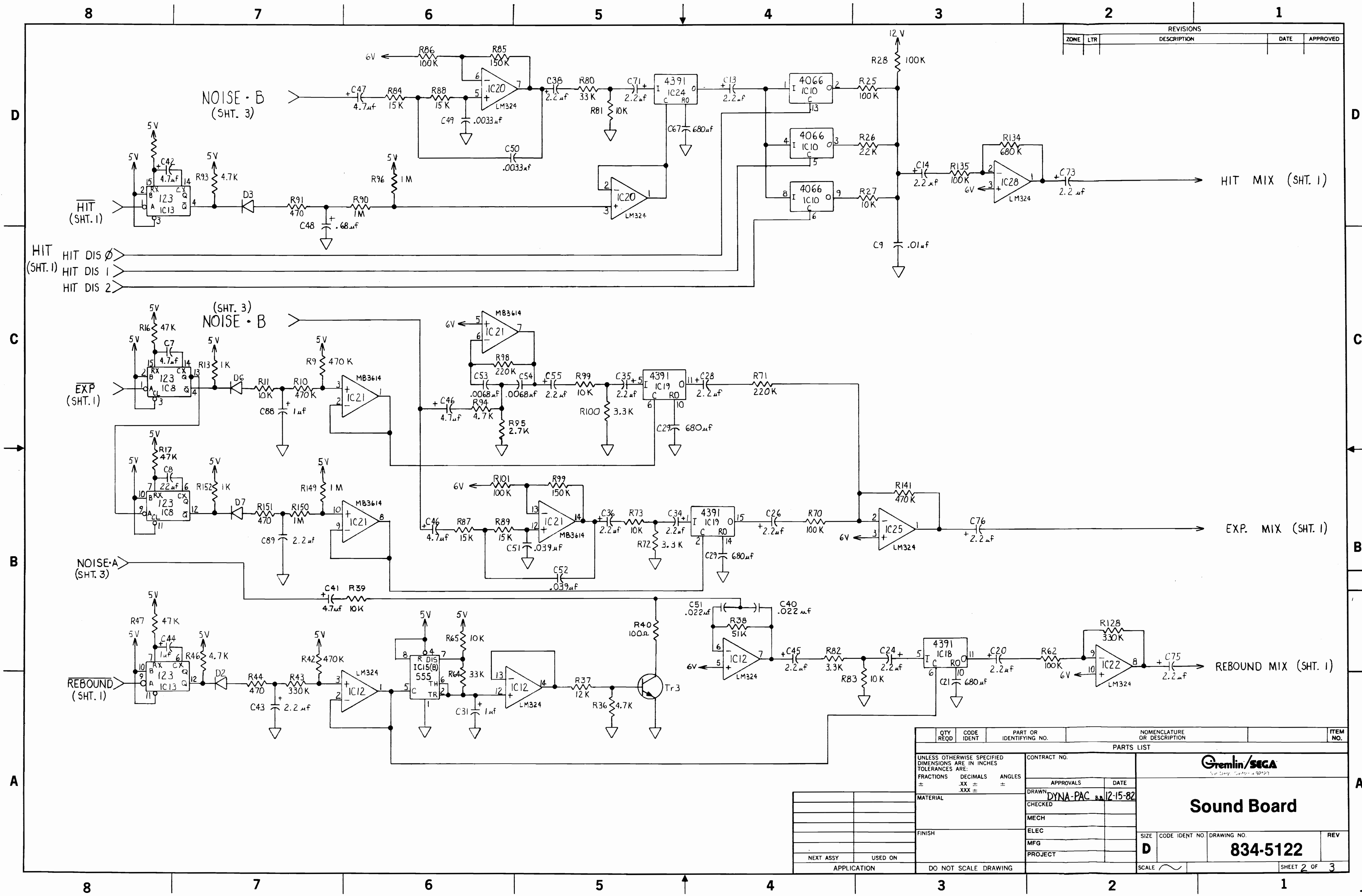
SCALE | SHEET 9 OF 10

REVISIONS: ZONE | LTR | DESCRIPTION | DATE | APPROVED

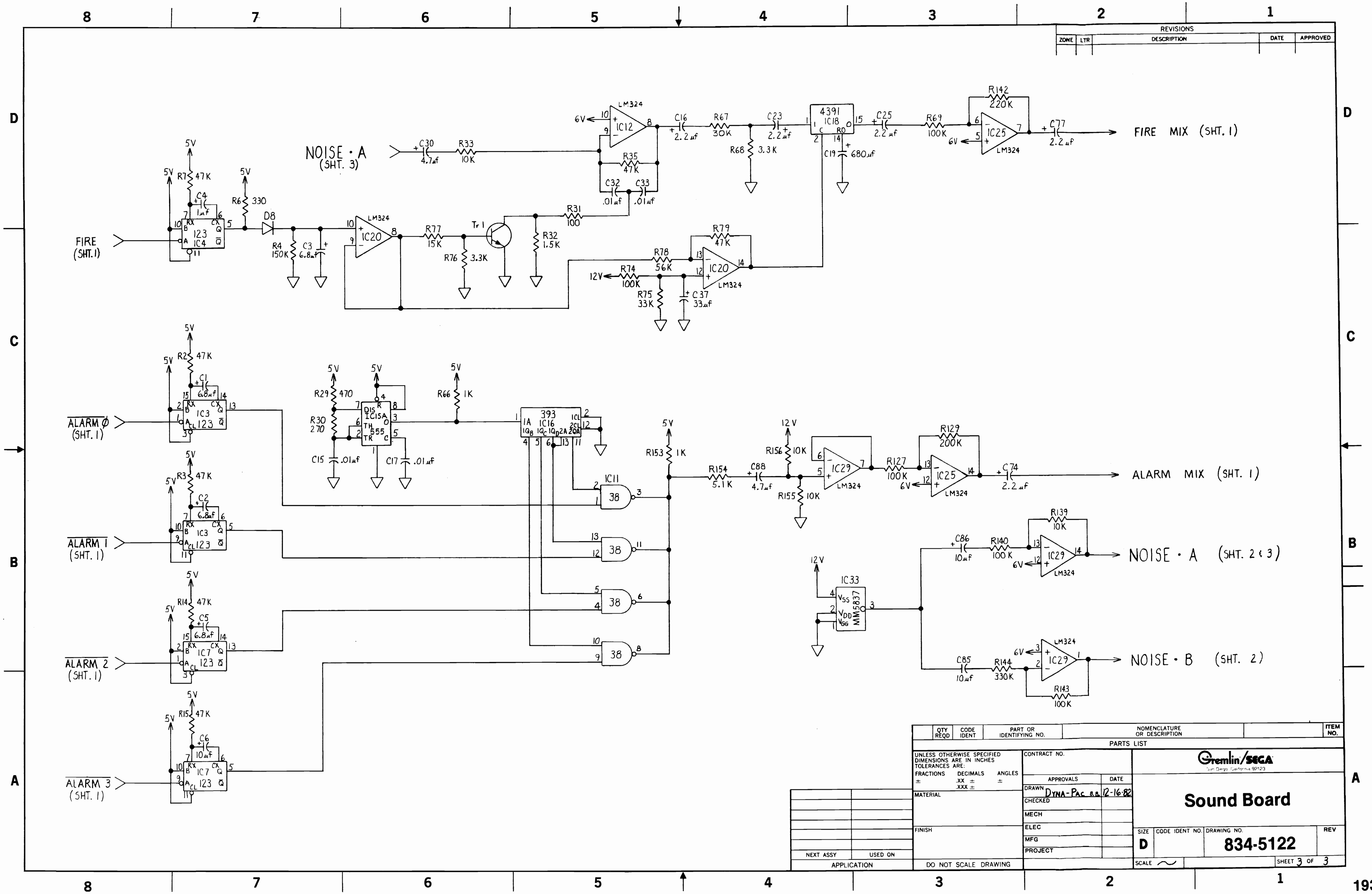

REVISIONS
ZONE LTR DESCRIPTION DATE APPROVED
LS109
LS109
VCC
CN3-21
HP 7
5M
CN2-1
BLANK
CN2-1
CLK 7
SHT. 1
CWEN 7
SHT. 1
IC28
10 CWEN
9 CWEN
END
LS191
IC95
ADL 7
SHT. 1
LS191
IC94
LS191
IC93
LS191
IC92
CN2
-11 ALØ
-13 AL1
-15 AL2
-17 AL3
-19 AL4
-21 AL5
-23 AL6
-25 AL7
-27 AL8
-29 AL9
-31 AL10
-33 AL11
-35 AL12
-37 AL13
-39 AL14
-41 AL15
VCC
ROM Ø
IC91
27128-3
(16K x 8)
TACC ≤ 400NS
ROM 1
IC90
LS86
IC10
LS273
IC89
CLK
1 CWEN
LS157
IC88
CWI5
IC9
LS86
CDA 7 SHT.2
CDB 7 SHT.2
CDC 7 SHT.2
CDD 7 SHT.2
LS25
IC25
PLB 7 SHT.2
LS2Ø
IC24
8 END
LEVEL 7
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS DECIMALS ANGLES
CONTRACT NO.
APPROVALS DATE
DRAWN TED DYNA-PAC 12-8-82
CHECKED
MECH
ELEC
MFG
PROJECT
MATERIAL
FINISH
NEXT ASSY USED ON
APPLICATION
DO NOT SCALE DRAWING
Gremlin/SEGA
EPROM Board
SIZE D
CODE IDENT NO.
DRAWING NO. 834-5121
REV
SCALE
SHEET 10 OF 10



REVISIONS
ZONE LTR DESCRIPTION DATE APPROVED
RA 2
RA 1
5 V
RA 4.7 K × 16
RA 3
12 V
RA 47K × 8
R1 47K
IC2 LM175B
IC6 LM175B
R8 47K
IC1
IC5
FAP-20-07 20 P FLAT CABLE
HIT DIS Ø
HIT DIS 1
HIT DIS 2
HIT (SHT. 2)
ACC Ø
ACC 1
ACC 2
ACC 3
MY SHIP (SHT. 1)
ALARM 0
ALARM 1
ALARM 2
ALARM 3
FIRE
(SHT. 3)
EXP
HIT
REBOUND
(SHT. 2)
SHIP ON
GAME ON
(SHT. 1)
IC14 555
IC17 LM324
IC26 LM324
IC 24 4391
IC10 4066
IC28 LM324
SHIP MIX (SHT. 1)
MY SHIP (SHT. 1)
ACC Ø
ACC 1
ACC 2
ACC 3
IC9 4066
IC22 LM324
Tr 2
Tr 4
Tr 5
SHIP ON (SHT. 1)
(SHT. 1) SHIP MIX
(SHT. 2) HIT MIX
(SHT. 3) FIRE MIX
(SHT. 2) EXP. MIX
(SHT. 2) REBOUND MIX
(SHT. 3) ALARM MIX
(SHT. 1) GAME ON
WITH HEAT SINK
SANYO POWER AMP LA 4460
12 V
6 V
5 V
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS DECIMALS ANGLES
MATERIAL
FINISH
NEXT ASSY USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO.
APPROVALS DATE
DRAWN DYNA-PAC 12-9-82
CHECKED
MECH
ELEC
MFG
PROJECT
Gremlin/SEGA
Sound Board
SIZE D
CODE IDENT NO.
DRAWING NO. 834-5122
REV
SCALE
SHEET 1 OF 3

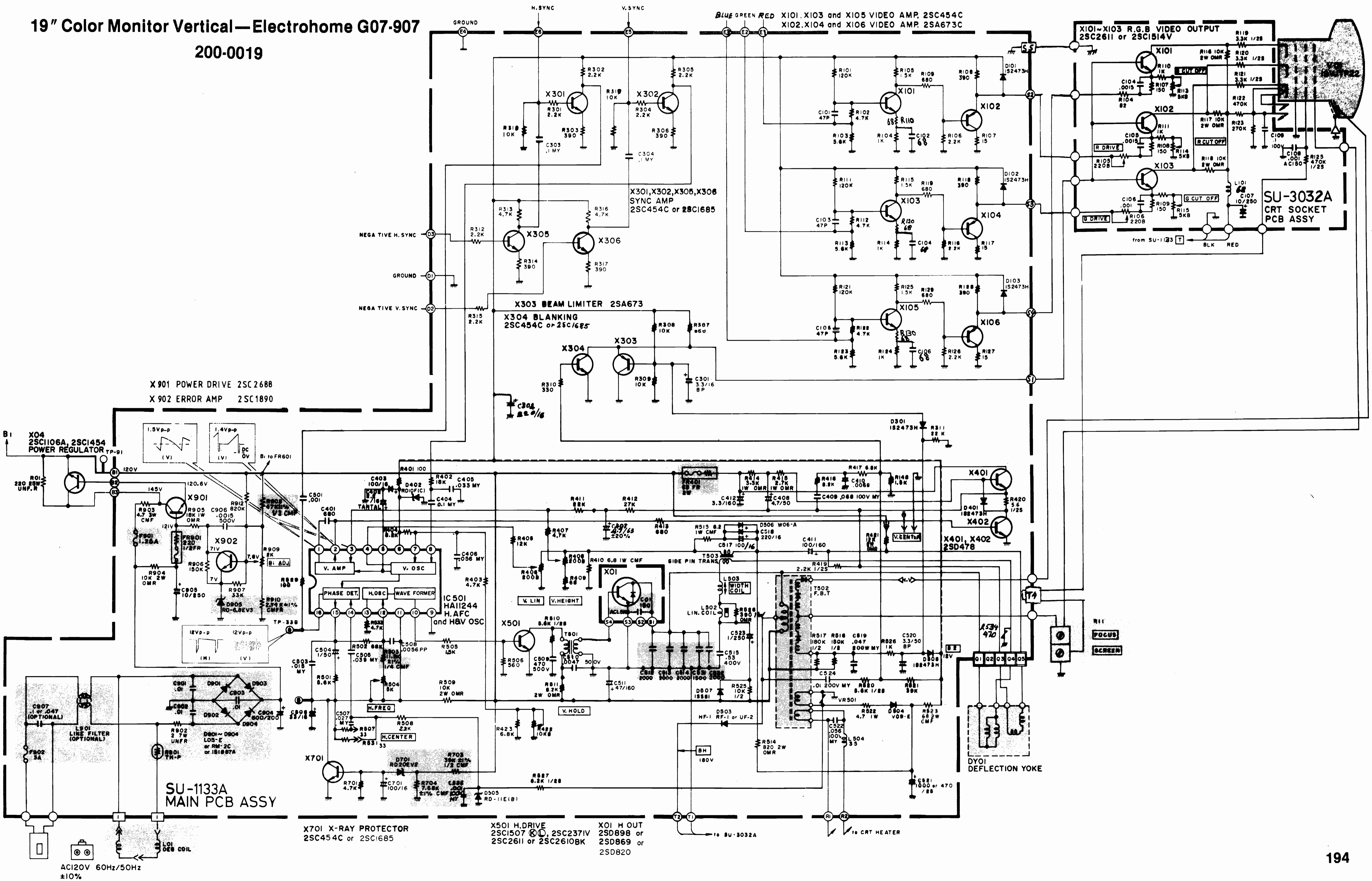


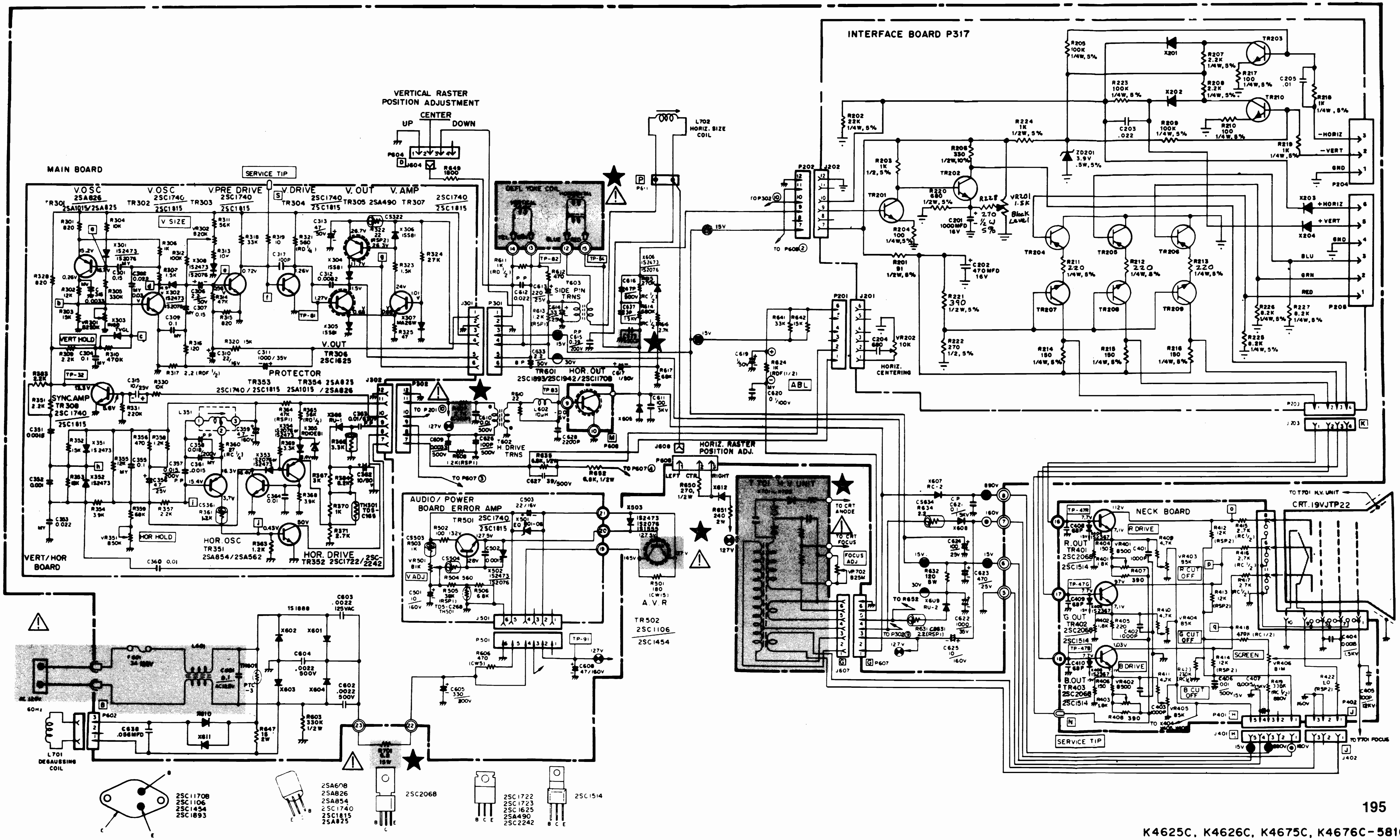
NOISE · B (SHT. 3)
HIT (SHT. 1)
HIT (SHT. 1)
HIT DIS Ø
HIT DIS 1
HIT DIS 2
HIT MIX (SHT. 1)
EXP (SHT. 1)
EXP. MIX (SHT. 1)
NOISE·A (SHT. 3)
REBOUND (SHT. 1)
REBOUND MIX (SHT. 1)
REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS
DECIMALS
ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO.
APPROVALS
DATE
DRAWN DYNA-PAC
12-15-82
CHECKED
MECH
ELEC
MFG
PROJECT
Gremlin/SEGA
Sound Board
SIZE D
CODE IDENT NO.
DRAWING NO. 834-5122
REV
SCALE
SHEET 2 OF 3


REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
FIRE (SHT. 1)
NOISE · A (SHT. 3)
FIRE MIX (SHT. 1)
ALARM Ø (SHT. 1)
ALARM 1 (SHT. 1)
ALARM 2 (SHT. 1)
ALARM 3 (SHT. 1)
ALARM MIX (SHT. 1)
NOISE · A (SHT. 2 & 3)
NOISE · B (SHT. 2)
LM324
4391 IC18
393 IC16
555 IC15A
MM5837 IC33
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS
DECIMALS
ANGLES
MATERIAL
FINISH
DO NOT SCALE DRAWING
NEXT ASSY
USED ON
APPLICATION
CONTRACT NO.
APPROVALS
DATE
DRAWN DYNA-PAC 12-16-82
CHECKED
MECH
ELEC
MFG
PROJECT
Gremlin/SEGA
Sound Board
SIZE D
CODE IDENT NO.
DRAWING NO. 834-5122
REV
SCALE
SHEET 3 OF 3

19″ Color Monitor Vertical—Electrohome G07-907

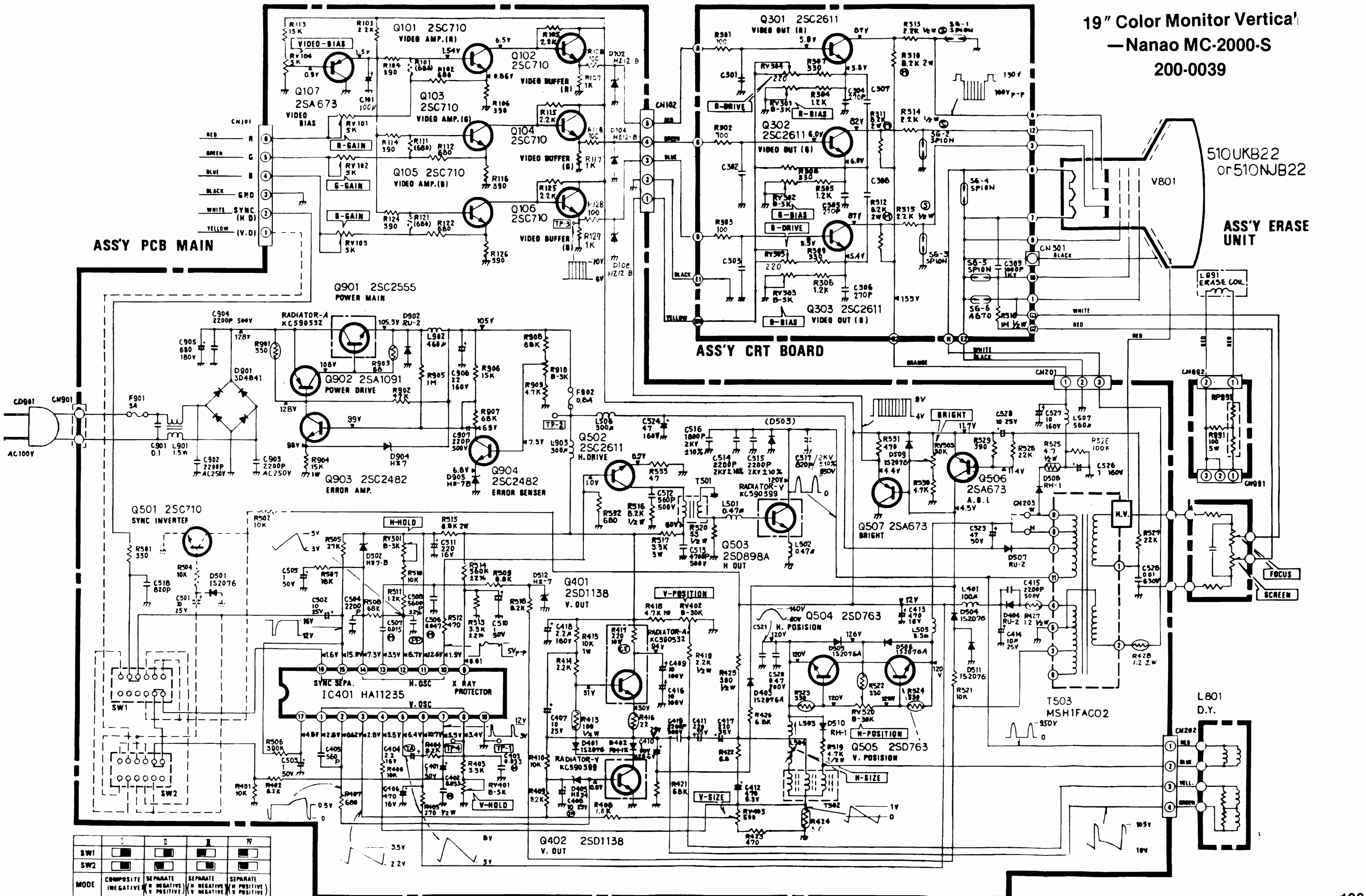
200-0019





INTERFACE BOARD P317
MAIN BOARD
VERTICAL RASTER POSITION ADJUSTMENT
CENTER
UP
DOWN
SERVICE TIP
L702 HORIZ. SIZE COIL
DEFL. YOKE COIL
PROTECTOR
HOR. OUT
HORIZ. RASTER POSITION ADJ.
HORIZ. CENTERING
ABL
AUDIO/ POWER BOARD ERROR AMP
A.V.R
T701 H.V. UNIT
NECK BOARD
CRT. 19VJTP22
VERT/HOR BOARD
HOR. OSC
HOR. DRIVE
L701 DEGAUSSING COIL
2SC1170B 2SC1106 2SC1454 2SC1893
2SA608 2SA826 2SA854 2SC1740 2SC1815 2SA825
2SC2068
2SC1722 2SC1723 2SC1625 2SA490 2SC2242
2SC1514

19" Color Monitor Vertical —Nanao MC-2000-S
200-0039



19" Color Monitor — Wells Gardner K4961

200-0091

